THE AMERICAN
JOURNAL OF PHARMACY.

FEBRUARY, 1882.

OLEUM BETULÆ LENTÆ.

By George W. Kennedy, Ph.G.

Read at the Pharmaceutical Meeting, January 17.

Having received several pressing invitations from Mr. A. H. Seidle, of Middleport, Schuylkill county, Pa.,—a small village situated midway between Pottsville and Tamaqua, on the Reading Railroad, about 9 miles east from the former and 8½ miles west from the latter place—to visit him and inspect his apparatus used in distilling oil of teaberry, so-called, the writer accepted, and recently made a visit to the place. Arriving at the village early in the morning I was received very kindly by the gentleman, and after a walk of about a half mile we reached the building where the oil is made, which is an ordinary one-story frame building; but quite large, and roomy enough for erecting additional stills and manufacturing considerable more of the oil than is made at present. The whole process was explained to the writer in a very satisfactory manner, commencing with the cutting down of the tree to the final packing of the oil ready to be shipped. There was no concealment made of a single point; in fact, the proprietor was anxious for me to become thoroughly acquainted with the preparation of the oil.

In locating a place for the distillation of the oil, there are several things to be taken into consideration. First, to have an abundance of material conveniently at hand, so that the supply may not soon be exhausted; and second, a good supply of water. The above-named place in these respects seems to be a very desirable spot for some time to come. I was told by the proprietor that sometimes the teaberry leaf is used exclusively, at other times the birch and wintergreen are mixed, and at this season of the year birch is used to the exclusion of all others; the oil extracted from all is mixed, and sold as oil of wintergreen. For a long time the oil of birch, wintergreen and of other plants have been considered almost identical, if not altogether so, and

it was one of my objects in making this visit to obtain the oil of birch bark, with the view of applying to it the usual tests for oil of wintergreen, the result of which will be given further on.

The species of birch used is the Betula lenta, commonly known in this locality by the names of cherry, sweet and black birch. It grows to the height of 75 feet; but as generally found is from 10 to 25 feet high. The bark is very sweet-aromatic; the leaves are ovate or oblong-ovate, form a more or less heart-shaped base; acuminate, sharply and finely double-serrate; when mature shining and bright green above, and glabrous, except on the veins beneath. It is found in moist woods, and grows north from New England to Illinois, and along the Allegheny regions southward.

The first step in the preparation of the oil is the gathering of the bark, or rather of the tree, as the whole tree is used, except a few small sprouts near the ground. These are left undisturbed, and in 5 years will be found to have grown to the height of 8 or 10 feet, and are then considered large enough to be cut for the extraction of the oil. It will be observed that from the stumps of trees used this year, a new growth may be used 5 years hence, and so on every five years; this industry does, therefore, not involve the destruction of the trees, as one would naturally suppose. The small trees are preferred, and are gathered by a man, for which he is paid about $3.00 per ton delivered, besides the payment to the owners of the land of $1.00 per ton for the privilege of cutting the trees, making in all $4.00 per ton for the trees delivered at the place where the oil is manufactured.

The trees are then submitted to a chopping machine, containing 2 large knives, about 18 inches long, and 3 to 4 inches wide, made strong and heavy, and which are so arranged that they are operated by a wheel, similar to that in the ordinary drug mill; for every revolution of the wheel the knives cut 4 times, and it requires but a short time to cut a ton of the material into pieces from 1 to 4 inches long, in which condition they are ready for the stills. These consist simply of heavy wooden boxes with copper bottoms, resting on a stone foundation, built about 15 to 18 inches above the surface of the earth, a place being made for fire. Wood is used altogether for fuel. The dimensions of the box or still are 4 x 6 feet and 3 feet high.

The material being ready for distillation, it is placed in the still, as much as this will hold, and a sufficient quantity of water is added to fill the still about one-third full. The still is generally permitted to

remain in this condition over night, a fire is made in the morning, and distillation proceeds nicely. The condensers used are of two different kinds, one being the ordinary copper worm placed in a large barrel, while the other is made of copper pipe, about 2 inches in diameter, and shaped like the letter U, each wing being 12½ feet long, and placed in a trough. A stream of cold water is constantly passing into the barrel and trough, and is carried several hundred feet by a wooden gutter, from a clean clear creek of spring water. The condensed steam in the condenser consists of water and oil. The U-shaped condenser, the distiller says, is more desirable than the other, because the first portion of distillate contains oil, whilst in the old worm style several bucketfuls of water pass out before a drop of oil makes its appearance. As the liquid comes from the condenser a novel contrivance is used for collecting the oil and water, consisting of a Mason's fruit jar (2-quart size), complete; a small tin funnel is placed in the metallic cap of the jar at one side, and extends below the cap, the condensed liquid runs through the funnel into the jar, and as the weight of the oil is greater than that of the water, it sinks to the bottom of the receiving vessel. The water runs out through a pipe fastened into the cap on the side opposite to that where the funnel is inserted, is conducted into a bucket, and finally emptied into a barrel, to be used again for the next lot of material. The advantages of using the same water in successive operations are apparent. When distillation ceases, the crude oil thus obtained, containing a little water and fragments of vegetable matter, is emptied into a can, with a broad flat spigot fastened as close as possible to the bottom, and the impurities floating on the surface; the clear oil is then drawn off through the spigot.

The rectification of the oil is accomplished in a very short time, the process being decidedly simple; but as I was requested and promised not to make it known at the present time, I regret that I am compelled to withhold this valuable information, since the perfection of this process has cost Mr. Seidle a considerable sum.

The odorous principle seems to be thoroughly extracted from the bark, and after the distillation the contents of the still have not the faintest aromatic odor or taste.

It is generally understood in preparing the volatile oil from birch bark to be absolutely necessary to submit the material to maceration with water, before distillation, in order to develop the oil. The distiller informed me that he obtains the oil occasionally from birch as

well as from teaberry, without previous maceration. Sometimes the bark is covered with ice and snow. As stated before, the material is generally placed in the still the night previous to commencing distillation in the morning. The steam generated passes up through the drug, and extracts the oil in its upward exit; but only about one-third of the bark is covered with water in the still. When the bark is macerated the yield is about 20 per cent. larger.

There are three layers of bark on the wood. The outer thin tissue contains no oil; the next, or middle layer, is of a greenish color, and likewise contains no oil; the inner layer, next to the wood, which is much thicker than the others and more spongy, yields the oil. Mr. Seidle informs me that during the month of October, or about the time the leaves fall, little if any oil is made, on account of the small yield, hardly reaching 30 per cent. of the yield of any other month during the year. The bark is never dried, but cut up and placed in the still in its green condition, and the oil extracted.

Water running from the coal mines cannot be used in the distillation, because it contains sulphur and its compounds, which seem to act very destructively on the yield, causing a falling off of at least 75 per cent.; that is to say, instead of obtaining 4 pounds of oil, but 1 pound is obtained, and this of a bright blood-red color.

The yield of oil from birch, using the whole tree in a green state, is 5 pounds from a ton of 2,240 pounds, or 0·23 per cent. The yield obtained from wintergreen herb averaged 18 pounds from a ton of 2,240 pounds, or about 0·80 per cent.; but the latter plant is considerably more expensive to gather, costing at the lowest calculation about $30.00 per ton, and in this locality labor cannot be procured at that price, since the gathering of the herb is very tedious, and the laborer can scarcely earn sufficient to live on.

The oil of Betula lenta, obtained as above described, is entirely colorless, of a strong and agreeable aromatic odor, and of a sweetish aromatic taste. I have found it to have a specific gravity of 1·178, about the same weight as oil of wintergreen. The oil boils briskly at from 424° to 436°, and the boiling point rises to 442°F., where it remains stationary; a little higher than that of oil of teaberry, which is said to be 431°F. The oil on being heated to boiling, changes in color from colorless to a light reddish-brown.

Like oil of gaultheria, with ferric chloride in water, it produces a dark violet color, and with a concentrated solution of soda or potash

a solid crystalline mass is formed. Heated with nitric acid, orange-yellow crystals are produced, nitrous acid fumes being at the same time given off, and when treated with cold nitric acid, crystallization takes place, forming methyl-nitrosalicylate. Treated with muriatic acid, after standing several days, white crystals are formed in quantity.

On adding 1 drop of the oil to 1 ounce of lime water, the odor entirely disappeared, and a very voluminous white precipitate of methyl-salicylate of calcium occurred, the same as with oil of teaberry, previously noticed by Mr. Wellcome ("Am. Jour. Phar.," 1875, p. 426). With sulphuric acid a dark red color is produced. This would account for the oil being red when coal-mine water is used in its extraction. Treated with iodine the color becomes much darker, and the oil of a syrupy consistence. In all respects, except the slight difference in the boiling point, the oil appears to be identical with that of oil of teaberry.

Mr. Seidle has no difficulty in disposing of his oil; it is put up in 25-pound cans, shipped principally to New York, and sold as oil of wintergreen, no matter whether it is made of birch, birch and wintergreen, or wintergreen. At the present time he is paid $2.65 per pound, and makes about 30 pounds per week, amounting to $79.50. The expense incurred is about $25.00, leaving a net profit of about $50.00.

It would seem proper that the oil be sold as oil of birch, and not as oil of wintergreen. Whilst the sale of it as oil of teaberry is not intended to deceive anyone, since it is believed to be identical with the oil of gaultheria, I do not apprehend any difficulty in finding a ready market for it if sold as pure oil of birch; in fact, I am of the impression that a demand could easily be made for it if sold by its proper name. The volatile oil of birch bark would even seem to deserve a place among the officinal drugs in the Pharmacopœia.

Isolation of Strychnine.—A. H. Allen recommends a mixture of equal volumes of ether and chloroform for the separation of strychnine recently precipitated from an aqueous solution. Ether alone has very little solvent power, and chloroform does not readily separato from the aqueous liquid.—*Analyst*, 1881, p. 141.

WINE OF WHITE ASH.

By Thos. S. Wiegand, Ph.G.

Read at the Pharmaceutical Meeting, January 17, 1882.

Within the past two or three years this preparation has been prescribed with great success by Dr. Chas. P. Turner, of this city, in the treatment of dysmenorrhœa and the troubles that so frequently complicate it; inquiries have been made regarding it and it is in answer to these this paper has been written.

The botanical name of the tree is Fraxinus americana, *Lin.*, White Ash, sometimes written Fraxinus alba, improperly so, as no botanical authority which I have consulted gives this as a synonym; Dr. Muhlenberg, the botanist, proposed the name of *discolor* in consequence of the marked difference between the upper and under surfaces of the leaf.

The tree, which is one of the largest of our forest trees, reaching in favorable locations a height of eighty feet, with a diameter of three feet, is found mostly in swampy lands or on the margins of rivers; it flourishes in northern New York and northward in Canada, but is found in New Jersey, Pennsylvania and farther south and west; its common name of White Ash is most probably due to the color of the bark by which it may easily be distinguished; on the trunk of the tree the bark is often deeply furrowed and divided into squares of 1 to 3 inches; the foliage is made up of compound leaves consisting of 3 or 4 pairs of leaflets, with a terminal one; the leaflets being oval acuminate, petiolate and glaucous on the under side. An excellent plate, showing the leaf half the natural size, and the fruit of full size, is given in Michaux's "North American Sylva," from which this description has been taken.

The bark, as found in commerce, is usually concised transversely, and when dried is of a light salmon color, of very slight odor and bitterish taste. The virtues are best extracted by a weak alcoholic menstruum. The following formula yields a preparation which Dr. Turner has found most useful in practice:

Take of Inner bark of the White Ash, powd. No. 40, ℥viii
Sherry wine sufficient for . . . Oii
Macerate the bark for three days, pack firmly in a cylindrical percolator and displace slowly two pints.

The wine thus prepared has a color of brown sherry and a taste quite peculiar. The usual dose is a teaspoonful 3 times a day.

THE RAPID PREPARATION OF MERCURIAL OINTMENT.

Editor American Journal of Pharmacy.

In the December number of the JOURNAL, Mr. Phil. Hoglan gives a process for rapidly making mercurial ointment by using a small quantity of old mercurial ointment for the extinguishment of the mercury. There is no doubt of its success. In fact, any old ointment, whether mercurial or not, will answer, but the process is objectionable in this, that the little "leaven leaveneth the whole lump," and soon causes the ointment to become rancid and irritating.

We had occasion a few months since to make some mercurial ointment in a hurry, and used a small quantity—one ounce to twelve—of old ointment, and when it was used a few weeks afterward, it caused an irritation and soreness that was several days in healing, so that we were glad to dispense with its use, instead of dispensing it over the counter. Won't you please give us your opinion of the proposed process?

J. H. REDSECKER.

Lebanon, Pa., Dec. 29, 1881.

REMARKS BY THE EDITOR.—The injurious effects of "old" rancid fat when mixed with good fats are well known; our valued correspondent states the case correctly: it "leaveneth the whole lump," and in the case of mercurial ointment renders, in a short time, the entire amount unfit for medicinal use, at least in those cases where it is to be applied to tender or excoriated surfaces. Yet it does not necessarily follow that Mr. Hoglan's *old* mercurial ointment should also be *rancid*, though it is undoubtedly correct that even if preserved in a cool place and as much as possible protected from contact with the atmosphere, the mercurial ointment of our present and of most other pharmacopœias, will in the course of time and under the conditions under which it must necessarily be kept and occasionally exposed, gradually become rancid. That a *rancid* mercurial ointment is not absolutely necessary for facilitating the extinguishment of mercury, but that a *fresh* ointment may be used with the same good result, has been observed about fifty years ago; for A. Buchner ("Repert.," 1834, xlviii, p. 267) states distinctly that the mercurial ointment used for extinguishing the mercury need *not* be rancid. The same fact was also recently proven by E. Dieterich, an abstract of whose paper will be found in this Journal,

1880, p. 138–142, and has been corroborated by Prof. Remington, who states that "the addition of some properly made mercurial ointment which is entirely free from rancidity, facilitates the extinction of the mercury" ("Am. Jour. Phar.," 1881, p. 192).

That ether is an excellent aid in the extinguishment of mercury was noticed by J. L. Desmarest in 1829, and Eugene Renoult recommended the use of 30 grams of it for one kilogram of lard ("l'Officine"); its employment in conjunction with mercurial ointment *from a previous operation* (it will be noticed that *old* ointment is not mentioned) was strongly recommended by Geo. Baylé in 1874 ("Am. Jour. Phar.," 1874, p. 561). The ether will evaporate during the trituration, and the remaining ointment will then be as prone to rancidity as without its addition. It would therefore seem to be advisable to add a preservative agent, for which purpose at various times, storax, Peruvian balsam, tincture of tolu, tincture of benzoin, and benzoinated lard have been proposed. Prof. Remington advocates compound tincture of benzoin in a proportion which would introduce less than one per cent. of resinous matter into the ointment, an amount which appears to be too insignificant for causing irritation. But it seems to be well worthy of investigation, whether, by substituting cacao butter or a similar fat for the suet, a permanently sweet and non-irritating ointment cannot be produced. The addition of paraffin to the lard does not prevent the latter from turning rancid, and the substitution of soft paraffin for all the fats is objectionable on therapeutic grounds, at least in a number of cases.

PRACTICAL NOTES FROM FOREIGN JOURNALS.

By the Editor.

Testing of Benzoic Acid.—The asserted reduction of potassium permanganate by benzoic acid prepared from urine has been the subject of several investigations. Dr. C. Schacht ("Archiv d. Ph.," Nov., 1881, p. 321) has made comparative experiments with benzoic acid obtained 1, from urine; 2, from toluol; 3, from benzoin (commercial); 4, from Siam benzoin by sublimation; 5, from the same by the wet process. In acid and, more characteristically, in alkaline solution, a reduction takes place only with the last two acids. On dissolving at 15°C. 0·1 gram of benzoic acid in 3 cc. of potassa solution, spec. gr. 1·177, diluting with 3 cc. of distilled water, adding 5 drops of a ½ per cent. solution

of potassium permanganate and heating to boiling, the first named three kinds of benzoic acid produced dark green colored liquids in which gradually brown precipitates appeared, while Nos. 4 and 5 produced decoloration of the liquids and brown precipitates, due to the presence of cinnamic acid.

Jacobsen ("Industrieblätter," No. 50) states that pure benzoic acid from all sources has exactly the same behavior against reagents; the source of benzoic acid can therefore only be ascertained chemically in the presence of impurities resulting from the material. Benzoic acid prepared from toluol (benzodi- or trichloride) is apt to contain chlorine, which is best detected by cupric oxide upon the platinum wire in the flame. If prepared from urine, the benzoic acid contains nitrogen, which is detected by potassa as ammonia, and has usually also an odor like horse sweat. Benzoic acid from resin is free from nitrogen and chlorine. The test with potassium permanganate is of no value since benzoic acid from toluol will be reduced on account of the presence of bitter almond oil and of derivatives from cinnamic and phenyl-acetic acid; if prepared from urine, various organic compounds will effect the reduction, and if obtained from resin, cinnamic acid and empyreumatic products have the same effect. But after purification, sublimation, etc., of these acids, the reducing power is materially modified or entirely removed. Benzoic acid sublimed from the resin in imperfect apparatus always contains more of the empyreumatic reducing compounds than are obtainable in the modern apparatus with proper ventilation and low heat.—*Phar. Centralh.*, Dec. 22, 1881, pp. 565–567.

Chinoline Tartrate.—The results of the physiological and therapeutical observations of Donath (this Journal, 1881, pp. 173, 620), Dr. Loewy, of Vienna, and Dr. Sakowsky, of St. Petersburg, prove that the action of chinoline is analogous to that of quinine. The alkaloid is an oily liquid of a peculiar odor, insoluble in water, but easily soluble in alcohol, ether, chloroform and similar solvents. Most of its salts are deliquescent and difficult to crystallize; but the tartrate has been prepared by Hofmann and Schoetensack in glossy silky crystals which are permanent in the air, are soluble in water, have a slight bitter almond odor and a somewhat pungent taste resembling that of peppermint water. The salt is used in about the same manner and dose as sulphate of quinine; in cases of intermittent fever, 1 gram of it is given in 2 or 3 doses about 3 hours before the chill, either as powder enclosed in wafers, or dissolved each in 50 grams of water

with 1 to 3 grams cherry laurel water and sweetened with raspberry syrup; should nausea be observed, a tablespoonful of lemon-juice or small pieces of ice may be given.

The absence of bitter taste renders chinoline tartrate of peculiar importance in the treatment of children. A good formula for children of 4 to 8 years is the following:

℞ Chinolini tartrat., . . . 1·0 (gr. xv)
Aquæ destill.,
Syr. simplic., . . *aa* 50·0 (℥xiiss)
S. To be taken in two days in about four doses.

A *mouth wash* has been used with advantage consisting of chinoline tartrate 1·5, distilled water 140·0, alcohol 20·0, oil of peppermint 1 drop; it is to be diluted with 5 to 8 parts of water.

The price of chinoline tartrate is about one-fifth that of quinine.—*Phar. Zeitung*, Oct. 19, p. 630.

Estimation of Alkaloids as Picrates.—Hager recommends the gravimetric estimation of alkaloids by a solution of picric acid, saturated at ordinary temperatures. The alkaloids are preferably employed as sulphates in moderately acid solution. The precipitation should be effected below 15°C. 1 gram of nicotine sulphate requires at least 300 cc. of the picric acid solution, and about 150 cc. of the latter are necessary for 1 gram of sulphate of a cinchona alkaloid. Coniine, aconitine, atropine, veratrine, codeine, strychnine, morphine and others are not adapted for estimation in this manner; but reliable results are obtained with nicotine, brucine, berberine and the cinchona alkaloids. —*Phar. Centralhalle*, 1881, pp. 399, 400.

Estimation of Quinine as Herapathite.—A. Christensen, from a series of experiments considers De Vrij's method, though not absolutely accurate, the best yet recommended, and arrives at the following conclusions:

1. Acidulated alcohol dissolves notable quantities of herapathite, and the correctness of the results will be influenced by too much as well as by too little acid.

2. The concentration of the liquid may influence the result.

3. Cinchonidine periodosulphate may be precipitated in the presence of notable quantities of that alkaloid, notwithstanding the precaution, recommended by De Vrij, of adding the reagent slowly, and with constant stirring.

4. Quinine iodosulphates, with more iodine than is contained in herapathite, may be formed, unless the precipitation is effected in the

cold, and the precipitate filtered in a short time (one hour).—*Pharm. Zeitschr. f. Russl.*, 1881. Reprint.

[The sources of error pointed out above are avoided by following the process as modified by Dr. De Vrij in "Amer. Jour. Phar.," 1880, p. 394, in which, however, the precipitation of quinine in the cold is recommended, and the subsequent heating of the mixture in a water-bath, so as to obtain the herapathite crystallized. EDITOR.]

Estimation of Alkaloids in Cinchona Bark.—Prollius observed that if a mixture of 38 grams alcohol, 10 grams chloroform, 2 grams ammonia water, and 5 grams cinchona bark, is agitated in a stoppered bottle, a wine-red liquid is obtained, containing all the cinchona alkaloids. On mixing the clear decanted liquid with 5 grams finely levigated calcium hydrate, it is at once decolorized, and on slow evaporation the quinine is left of a resinous appearance, while the other alkaloids are crystalline. From the weight of the decanted liquid the weight of the cinchona bark represented therein is easily calculated, and the percentage of alkaloids from the weight of the residue obtained on evaporation.

A simpler process for ascertaining the percentage of quinine and of the other alkaloids soluble in ether is as follows: A mixture is made of 88 ether, 4 ammonia water and 8 alcohol, the latter serving merely for uniting the ammonia with the ether. Thirty grams of this mixture are well agitated during several hours with 3 grams powdered cinchona bark; 20 grams of the clear solution, containing the alkaloids in question, on being mixed with a slight excess—5 or 6 drops—of dilute sulphuric acid, separate a thick solution of the alkaloidal salts, from which the ether may be readily decanted; the latter should be well agitated with 2 grams and then with 1 gram of water, in order to obtain all the alkaloids. The mixed aqueous solutions are heated to expel all the alcohol, and, while still warm, precipitated with ammonia. The weight of the precipitate, after washing and drying, multiplied with 50, indicates the percentage of the alkaloids soluble in ether.

The alkaloids may also, though less correctly, be weighed as sulphates, if the etherial tincture is freed from ammonia by agitation with water, and then very carefully neutralized with dilute sulphuric acid, when the sulphates will at once crystallize out; a slight excess of acid will readily dissolve these salts.—*Archiv d. Phar.*, August, 1881, 85–87.

with 1 to 3 grams cherry laurel water and sweetened with raspberry syrup; should nausea be observed, a tablespoonful of lemon-juice or small pieces of ice may be given.

The absence of bitter taste renders chinoline tartrate of peculiar importance in the treatment of children. A good formula for children of 4 to 8 years is the following:

℞ Chinolini tartrat., . . . 1·0 (gr. xv)
Aquæ destill.,
Syr. simplic., . . *aa* 50·0 (℥xiiss)
S. To be taken in two days in about four doses.

A *mouth wash* has been used with advantage consisting of chinoline tartrate 1·5, distilled water 140·0, alcohol 20·0, oil of peppermint 1 drop; it is to be diluted with 5 to 8 parts of water.

The price of chinoline tartrate is about one-fifth that of quinine.—*Phar. Zeitung*, Oct. 19, p. 630.

Estimation of Alkaloids as Picrates.—Hager recommends the gravimetric estimation of alkaloids by a solution of picric acid, saturated at ordinary temperatures. The alkaloids are preferably employed as sulphates in moderately acid solution. The precipitation should be effected below 15°C. 1 gram of nicotine sulphate requires at least 300 cc. of the picric acid solution, and about 150 cc. of the latter are necessary for 1 gram of sulphate of a cinchona alkaloid. Coniine, aconitine, atropine, veratrine, codeine, strychnine, morphine and others are not adapted for estimation in this manner; but reliable results are obtained with nicotine, brucine, berberine and the cinchona alkaloids. —*Phar. Centralhalle*, 1881, pp. 399, 400.

Estimation of Quinine as Herapathite. — A. Christensen, from a series of experiments considers De Vrij's method, though not absolutely accurate, the best yet recommended, and arrives at the following conclusions:

1. Acidulated alcohol dissolves notable quantities of herapathite, and the correctness of the results will be influenced by too much as well as by too little acid.

2. The concentration of the liquid may influence the result.

3. Cinchonidine periodosulphate may be precipitated in the presence of notable quantities of that alkaloid, notwithstanding the precaution, recommended by De Vrij, of adding the reagent slowly, and with constant stirring.

4. Quinine iodosulphates, with more iodine than is contained in herapathite, may be formed, unless the precipitation is effected in the

cold, and the precipitate filtered in a short time (one hour).—*Pharm. Zeitschr. f. Russl.*, 1881. Reprint.

[The sources of error pointed out above are avoided by following the process as modified by Dr. De Vrij in "Amer. Jour. Phar.," 1880, p. 394, in which, however, the precipitation of quinine in the cold is recommended, and the subsequent heating of the mixture in a water-bath, so as to obtain the herapathite crystallized. EDITOR.]

Estimation of Alkaloids in Cinchona Bark.—Prollius observed that if a mixture of 38 grams alcohol, 10 grams chloroform, 2 grams ammonia water, and 5 grams cinchona bark, is agitated in a stoppered bottle, a wine-red liquid is obtained, containing all the cinchona alkaloids. On mixing the clear decanted liquid with 5 grams finely levigated calcium hydrate, it is at once decolorized, and on slow evaporation the quinine is left of a resinous appearance, while the other alkaloids are crystalline. From the weight of the decanted liquid the weight of the cinchona bark represented therein is easily calculated, and the percentage of alkaloids from the weight of the residue obtained on evaporation.

A simpler process for ascertaining the percentage of quinine and of the other alkaloids soluble in ether is as follows: A mixture is made of 88 ether, 4 ammonia water and 8 alcohol, the latter serving merely for uniting the ammonia with the ether. Thirty grams of this mixture are well agitated during several hours with 3 grams powdered cinchona bark; 20 grams of the clear solution, containing the alkaloids in question, on being mixed with a slight excess—5 or 6 drops—of dilute sulphuric acid, separate a thick solution of the alkaloidal salts, from which the ether may be readily decanted; the latter should be well agitated with 2 grams and then with 1 gram of water, in order to obtain all the alkaloids. The mixed aqueous solutions are heated to expel all the alcohol, and, while still warm, precipitated with ammonia. The weight of the precipitate, after washing and drying, multiplied with 50, indicates the percentage of the alkaloids soluble in ether.

The alkaloids may also, though less correctly, be weighed as sulphates, if the etherial tincture is freed from ammonia by agitation with water, and then very carefully neutralized with dilute sulphuric acid, when the sulphates will at once crystallize out; a slight excess of acid will readily dissolve these salts.—*Archiv d. Phar.*, August, 1881, 85–87.

Estimation of Nicotine in Tobacco.—Dr. J. Skalweit, while making a large number of estimations of nicotine in tobacco, has carefully examined the various methods proposed. Schloesing's process ("Am. Jour. Phar.," xix, 69) yields unreliable results, owing to the difficulty of completely extracting tobacco with ether, and of exactly neutralizing the viscous resinous liquid with acid. Varying the apparatus by employing those recommended by Soxhlet and by Tollens for the extraction of fat, or the apparatus of Schiel (*Ibid.*, 1860, p. 137), the results were not improved. If distillation in the presence of alkali and water be resorted to, a decomposition of the nicotine seems to be unavoidable. The author therefore converts the alkaloid into sulphate, and extracts this salt by 98 per cent. alcohol.

The tobacco is dried at 50°C., finely powdered, and the moisture estimated with a weighed sample, 20·25 grams of the powder are mixed with 10 cc. normal sulphuric acid and 200 cc. alcohol of 98 per cent. The mixture is boiled for two hours in a flask, connected with a reversed condenser, and when cool poured into a measuring flask of 250 cc., the boiler being rinsed out with absolute alcohol sufficient for obtaining the measure indicated; 100 cc. of the clear liquid are placed in a flask, provided with a funnel tube terminating near the bottom in a fine point, and with a bent tube for carrying off the alcoholic vapors; the greater portion of the alcohol is distilled off, 30 cc. of potassa solution, sp. gr. 1·159, are added, and the distillation is continued until the liquid, dropping from the condenser, shows no reaction on litmus paper. The distillate is titrated with tenth-normal sulphuric acid, and by dividing the cubic centimeters found with 5, the percentage of nicotine in the tobacco examined is ascertained. The absence of ammonium sulphate is proven by evaporating to dryness and dissolving in 98 per cent. alcohol.—*Archiv d. Phar.*, July, 1881, pp. 36–41.

Detection of Starch Sugar in Cane Sugar.—P. Casamajor observed that methyl alcohol of 50° by Gay Lussac's alcoholometer, if saturated with starch sugar, will dissolve cane sugar, either white or yellow, very readily from mixtures of cane and starch sugar, without dissolving the latter. The degree of approximation in determining the latter has not yet been ascertained.—*Chem. News*, xlii, 326.

Detection of Starch-Sugar Syrup Mixed with Sugar-house Molasses.—P. Casamajor observed that straight sugar-house syrup, when mixed with three times its volume of methylic alcohol, will dissolve by stir-

ring, giving a very slight turbidity, which remains suspended, while syrups containing an admixture of starch-sugar give a very turbid liquid, which separates when left at rest into two layers, the lower being a thick viscous deposit containing the glucose syrup.

Considerable quantities are sold of a thin syrup of about 32°B., in which the proportion of sugar to the impurities is greater than in common sugar-house molasses. When a syrup of this kind is stirred with three times its volume of methylic alcohol, a marked turbidity and deposition will take place, which consists of pure sugar. The crystals are hard and gritty, and adhere to the sides of the glass, and are deposited on the bottom. There is no resemblance between this precipitate and that due to starch-sugar syrup.

Straight sugar-house syrup of about 40°B. will not dissolve in three times its volume of 93½ per cent. ethylic alcohol.—*Chem. News*, Dec. 2, 1881, p. 265.

Reactions of Milk. By Dr. C. Arnold.—Fresh milk yields with tincture of guaiacum, in a few seconds, a blue color; the reaction appears at once if the milk is carefully heated to from 40 to 60°C.; but it is not produced if the milk was heated to 80°C., or to boiling. Sour milk also shows the reaction; but mineral acids and caustic alkalies prevent it. The reaction is due to the presence of ozone in fresh milk. Tincture of guaiacum yields also a blue color with the emulsions of oils of poppy, olive, ricinus and flaxseed.

Fresh as well as boiled milk is capable, like blood corpuscles, of transferring ozone. A mixture of starch paste, potassium iodide and milk in contact with old oil of turpentine, at once turns blue at the point of contact, the zone becoming rapidly broader. After boiling the milk for some time the color appears only after several minutes.

Fresh milk freed from casein by acetic acid, if mixed with potassa solution and a trace of copper sulphate, does not yield the violet reaction characteristic of peptones; but after the milk has been kept for over twelve hours, the reaction appears, and the gradual increase of peptone is indicated by the deeper violet color.—*Archiv d. Phar.*, July, 1881, 41, 42.

Enemata of Peptones.—M. Henninger gives the following formula for enemata of peptones. Five hundred grams of very lean meat, minced fine, are placed in a glass receiver, on which are poured 3 liters of water and 30 cubic centimeters of hydrochloric acid of density 1·15; to this is added 2½ grams of the pure pepsin of commerce, at

the maximum of activity, that is to say, digesting about two hundred times its weight of moist fibrin. It is left to digest during twenty-four hours at a temperature of 45°C. (113°F.), either in a water-bath or a stove; it is then decanted into a porcelain capsule, brought to boiling point; and, whilst the liquid boils, an alkaline solution is poured into it (250 grams of carbonate of sodium to 1,000 grams of water) until it shows a very slight alkaline reaction. About 165 to 170 cubic centimeters of this solution must be added to it. When this result is obtained the boiling liquid is passed through a fine linen cloth, the insoluble residue being expressed; and this liquid, which amounts to about 2½ liters (3 pints), is reduced in the water-bath to 1,500 or 1,800 cubic centimeters. Half of it is administered every day in three enemata, adding 200 grams of white sugar for the 24 hours. The whole of the meat is not dissolved; the fat, the tendons, the connective and elastic tissues form an insoluble residue, amounting to about a third of the meat used.—*Phar. Jour. and Trans.*, Nov. 12, 1881. From Paris *Médical*, No. 29.—Reprinted from the British *Medical Journal.*

Ammoniacal Peptonate of Iron.—Jaillet and Guillart propose the following formula: Dissolve dry peptone 5 grams in cherry laurel water 50 grams, and add pure glycerin 50 grams, afterwards a mixture of solution of ferric chloride 6 grams (spec. grav. 1·26 and containing 26 per cent. of anhydrous ferric chloride) with cherry laurel water 25 grams. Now add ammonia water, drop by drop, until the flocculent precipitate is dissolved, taking care to avoid an excess of ammonia, and with cherry laurel water make the liquid measure 200 cubic centimeters. The solution, sufficient to fill the syringe of Pravaz, contains 2·5 milligrams of metallic iron.

This preparation has not the inky and styptic taste of ferric chloride, produces neither pain nor inflammation under the skin if the injection is made at 37 or 38°C., and does not give the reactions for iron with the ordinary reagents.—*Bull. gén. de Thérap.*, Dec. 30, 1881, p. 536.

Sucrocarbonate of Iron.—Dr. Dauvergne regarding this preparation (see "Amer. Jour. Phar.," 1881, p. 360) as being not a true chemical compound on account of its being decomposed by water, and claiming for himself the combination in 1842, of sugar with carbonate of iron; Dr. Dujardin-Beaumetz refers to the numerous chemical compounds which are decomposed by water and briefly reviews the history of saccharated carbonate of iron, which was proposed by Dr. Becker, of Mulhausen, and prepared in 1837 by C. Klauer, pharmacist, of the

same place, in the proportion of 2 parts of sugar to 1 part of the carbonate. In 1838 Vallet, guided by these observations, invented his pills. In 1841 Klauer's preparation was adopted by the pharmacopœia of Baden. In the British pharmacopœia it contains 40 per cent. and in the German pharmacopœia 20 per cent. of carbonate, the latter amount corresponding nearly to that found in the crystals (18·44 per cent.). The author strongly recommends the adoption by the pharmacopœia of the powder as the most agreeable and most convenient pharmaceutical form of ferrous carbonate.—*Ibid.*, Oct. 15, p. 316, 317.

Antiseptic Mixture.—A. Pennès recommends the following: Dissolve, by agitation, purified salicylic acid 50 grams, santonin and quinine sulphate, of each 20 grams, in 450 grams of 90 per cent. alcohol; then add tincture of Cape aloes (1:5) 10 grams, and rectified eucalyptol 50 grams; agitate occasionally during 12 hours and filter. This mixture is very bitter and active, but not dangerous, and may be given in doses of 5 to 30 drops, mixed with milk, Spanish wine or gum syrup, or may be injected subcutaneously, or mixed with bran or starch, as clysters.—*Ibid.*, Oct. 30, p. 360.

An Antiseptic Liquid is obtained in France, according to Dr. Horteloup, by treating certain lavas with hydrochloric acid, whereby the silicates are decomposed. After standing, a thick, greenish, granular mass separates from a yellowish syrupy liquid, the latter containing aluminium chloride 61·75, potassium chloride 19·81, chloride of iron 15·09, calcium chloride 2·13, gelatinous silica 1·22 (the amount of water is not given). Diluted with 100 parts of water it has been applied with lint, and diluted with 1,000 parts of water it has been used as a wash. It does not affect the unbroken skin, is free from odor and is sold at the moderate price of 5 francs per liter.—*Rép de Phar.*, Dec., 1881, p. 562.

Salicylated Mouth Wash is prepared of salicylic acid 5 grams, alcohol 150 grams, attar of rose 2 drops, oil of cinnamon 5 drops, oil of peppermint 15 drops, oil of gaultheria 2 drops, distilled water 20 grams. It may be colored red with fuchsine, or with a mixture of equal parts of cochineal, cream of tartar and carbonate of sodium.—*Phar. Zeitung*, Sept. 21, p. 573.

Tinctura Caffeini Composita Dresdensis.—I. One part of caffeine dissolved in 100 parts of an aromatic liquor.—G. Berg.

II. Macerate for a week 100 grams of best flowering Pekoe tea in 1 kilo of diluted alcohol, sp. gr. ·893, and in the tincture dissolve 10 grams of caffeine.—C. Fingerhuth.—*Ibid.*, Oct. 5, p. 601.

Soluble Cacao, which was first prepared in Holland, and is known as Dutch cacao, is prepared from the seed, deprived of fat by pressure, by digesting the press cake with sodium or potassium carbonate, which treatment renders cellulose, starch and albuminoids more readily soluble in water. Otto Rueger prepares also soluble cacao mass which contains all the oil; the latter is first removed by pressure, the residue is treated as stated above and the fat is afterwards added again. Thus prepared it contains a somewhat larger percentage of ash, but yields a palatable beverage simply by stirring with hot water, without boiling. This mass was found to contain cacao-butter 47·73, nitrogenated compounds 12·3, ash 5·4, and in the latter alkaline carbonates 2·25 per cent. Cacao powder, similarly prepared, contained fat 30·45, nitrogenated compounds 19·94, ash 6·1, with alkaline carbonates 2·78 per cent.—*Phar. Centralhalle,* Nov. 17, 1881, p. 509.

Coating for Blackboards.—1. Sandarac 300, shellac 300, lampblack 200, ultramarin 30, ether 10 grams, 96 per cent. alcohol 4 liters. H. Schœneweg.

2. Shellac 200, camphor 80, lampblack 90, ether 800, alcohol 1,000 grams. C. Welcker.—*Phar. Zeitung,* 1881, No. 72.

Mel Rosæ.—E. Langlet recommends the following process: 100 grams of bruised red rose leaves are macerated for three hours with a mixture of water 160, alcohol 20 and ether 20 grams. The liquid is expressed, and preserved in a cool place. An infusion is now made of the rose leaves with 600 grams of boiling water, strained, clarified with white of egg, evaporated at a low temperature to 150 grams, and mixed with 600 grams of good and thick honey. The mixture is heated to the boiling point, the ethereal liquid is added in small portions, and the heat continued, without boiling, until the ether has been expelled; the honey is cooled, and filtered through paper.—*Rép. de Phar.,* 1881, p. 405.

Medicated Soaps.—The following formulas are published in "Phar. Centralhalle," Dec. 15, from "Seifenfabrikant," 1881, No. 23:

Tannin Soap.—Cocoanut oil 9 kilos is saponified with soda lye 4·5 kilos; 250 grams tannin dissolved in alcohol are then added, and finally the perfume consisting of Peru balsam 30 grams, oil of cassia and oil of cloves of each 10 grams.

Iodine Soap.—Cocoanut oil 10 kilos, lye of 38°B. 5 kilos and potassium iodide 500 grams dissolved in 250 grams water.

Gall Soap.—1·5 kilo of gall is mixed with 25 kilos of cocoanut oil,

and the latter saponified in the cold with 12·5 kilos soda lye of 38°B. The soap is colored with 350 grams ultramarin green, and perfumed with 75 grams each of oil of lavender and caraway.

Camphorated Sulphur Soap.—Cocoanut oil, 12 kilos; soda lye of 38°B., 6 kilos; sulphuretted potash, 1 kilo dissolved in water 0·5 kilo; camphor, 160 grams, to be dissolved in the melted cocoanut oil.

Infant Powder.—Dr. Klamann recommends as preferable to lycopodium, starch, etc., the following mixture for dusting in intertrigo, eczema and erythema of infants: Calcined magnesia 5·0, talc 25·0, salicylic acid 0·2, oleo-balsamic mixture gtt. x. The powder is a very effectual remedy and entirely harmless.—*Phar. Centralhalle*, Dec. 15, from *Deut. Med. Zeitg.*, 1881, No. 48.

Phosphorescent Powders, which have been recently employed in Europe for rendering signs, dials, etc., visible at night, are prepared by Pfeiffer, Fitz, Corty and Talleyrand Périgoid, by mixing 100 grams of calcium carbonate and phosphate, prepared by calcining oyster shells or cuttlefish bones, with 100 grams caustic lime, 25 grams calcined table salt, and adding to this mixture from 20 to 25 per cent. of sulphur and 3 to 7 per cent. of sulphide of calcium, barium, strontium or magnesium, previously exposed to the sunlight. A phosphorescent material prepared by incinerating marine algæ is also added for the purpose of increasing the illuminating power. The powders are rendered adhesive by means of varnish, collodion, paraffin, isinglass, etc., or may be incorporated in melted glass.—*Jour. de Phar. et de Chim.*, Oct., 1881, p. 352; *Jour. Phar. d'Als. Lorr.*

PRACTICAL NOTES.

By R. F. Fairthorne, Ph.G.

Extract of Vanilla.—So many formulas have been published by which this extract or tincture can be made, that it seems almost superfluous to offer another, yet, having tried many of them, I found none so satisfactory as the following:

℞	Vanilla bean, of good quality, . .	1 ounce
	Rock candy, ...	2 ounces
	Alcohol, ...	9 fluidounces
	Water, ...	7 "

Cut the vanilla as small as possible with a sharp knife, then transfer it to an iron mortar and beat it and the rock candy into powder, which is to be put into a bottle with the alcohol and allowed to macerate

therein, with occasional agitation, for twenty-four hours. Then add the water, treat in the same manner for two days, and filter the extract, which will be found to possess a strong flavor and good color.

Extract of Herbs for Flavoring Soups, etc.—The addition of herbs to soup so as to flavor it pleasantly has suggested the advisability of making a preparation that will contain and retain unchanged the various flavors usually employed. The delicate aroma of many of them is impaired by time and exposure, and it is therefore desirable to preserve them, which is done when made into an extract in the following manner:

℞	Savory,	
	Sweet marjoram,	
	Basil, ...	each 2 ounces (troy)
	Sage,	
	Black pepper, . .	each ½ ounce "
	Thyme, . . .	1 ounce "
	Celery seed, . . .	1½ drachm
	Alcohol, . . .	3½ pints
	Water, ...	½ pint

Reduce the dry ingredients to a coarse powder. Pack them tightly in a percolator, after having moistened them with six fluidounces of the mixture of alcohol and water. Pour on the remainder of the menstruum. As soon as the liquid ceases to pass through, displace with diluted alcohol sufficient to make the product measure four pints. This will be found a very palatable addition to soups and gravies.

As delicate persons frequently complain of the insipidity of beef-tea, or infusions of extracts of meat, I have found that their objections can be overcome by mixing 4 or 5 drops of the "extract of herbs" with each wineglassful of the tea, so that they can take it with relish. For this reason I think it is a desideratum for the druggist to be able to offer to such customers a preparation like that described above. Some invalids, however, prefer the flavor of celery, which can be made by the following formula, and the same quantity used as of the former:

℞	Celery seeds (bruised), . .	6 drachms
	Alcohol, ...	14 fluidounces
	Water, ...	2 fluidounces

Macerate for 2 days and filter.

Marking Pill Cutting Machines.—One of those small contrivances that add to the convenience of the dispenser of prescriptions consists of marking each groove of the pill machine consecutively, thereby saving the time required to count them, which is often quite desirable,

especially when the pills are wanted in a very short time. It is most convenient to begin marking the numbers from left to right. This can be readily done by using a fine pen and indelible ink, which will remain permanent and stand any amount of washing. A good plan is to mark each groove at the top, except every fifth one, which is best to have the number placed at the bottom, in order to make the numeration more easily read. This will be found especially desirable for the pill machines that cut small pills, such as one grain, so that the fifth, tenth, fifteenth, twentieth, and twenty-fifth grooves can be distinguished at a glance. The ink used should be made with nitrate of silver.

Antiseptic Cologne.—

℞	Cologne,	fl. oz. 8
	Chloral hydrate,	dr. 2
	Quinine (alkaloid),	gr. 10
	Carbolic acid (pure),	gr. 30
	Oil of lavender,	drops 20

Having frequently noticed that when carbolic acid is mixed with chloral, the odor of the former is either covered or removed, I prepared the cologne as above, and found that it was by no means disagreeable. It can be used in the form of spray, or on the handkerchief, and, as it contains three well-known antiseptics, it may possess some valuable properties. It was made up, however, several years ago, to supply a popular demand for such an article, and gave satisfacfaction, at least to some who used it; but whether from increasing the confidence of those using it, in the belief of its prophylactic effects, or from its really possessing such, I am not able to state, but must leave it for others to determine.

Solution of Citrate of Magnesium—An improvement can be made in making this solution by using calcined magnesia instead of the carbonate. This is due to the fact that when light calcined magnesia is employed, the citrate is free from a peculiar flavor that is scarcely capable of description, except by the term earthy. In the following receipt the same amount of citric acid is employed as called for by the formula given in the U. S. Pharmacopœia, and yet if any druggist will take the trouble to make it by this receipt, he will find a marked difference in the taste of the solution. He will also find that a beautifully clear preparation is obtained.

℞	Light calcined magnesia,	dr. 7, gr. 55
	Citric acid,	troy oz. 4, dr. 1, gr. 45
	Bicarbonate of sodium,	dr. 1, gr. 40
	White sugar,	troy oz. 6
	Oil of lemon,	drops 3
	Bicarbonate of potassium,	q. s.

Water sufficient to make 50 fluidounces.

Dissolve the citric acid in 20 fluidounces of hot water; add the magnesia, and when solution is effected add the sugar, then the bicarbonate of sodium, the oil of lemon and cold water. Filter, and of this put 10 fluidounces in a suitable bottle, with 40 grains of bicarbonate of potassium. Cork tightly and tie over as usual.

CHEMICAL NOTES.

By Prof. Samuel P. Sadtler, Ph.D.

Inorganic Chemistry.—*On the freezing point of Sulphuric Acid of different degrees of concentration.*—Prof. G. Lunge has made a series of careful experiments on the question of the degree of cold necessary to bring about the formation of crystals in sulphuric acid of different specific gravities. According to Marignac, pure sulphuric acid, H_2SO_4 (frequently called monohydrated sulphuric acid), fuses at +10·5°C.; the strongest acid obtainable by evaporation or boiling, which contains 98 to 99 per cent. of monohydrated acid at the most, being said to deposit these crystals of monohydrate when cooled to 0°C., although frequently that point is reached without any change whatever. It is known too that the common strong sulphuric acid of commerce, that of 66° Baumé, which contains 95 to 96 per cent. of monohydrated acid cannot be brought to solidify even by a freezing mixture. However, the so-called second hydrate, $H_2SO_4+H_2O$, repeatedly crystallizes at +8°C., and this often happens in practice. Acids which approximate this composition (the second hydrate contains 84·5 per cent. H_2SO_4, and has a sp. gr. of 1·778 or 63·2° Baumé), when exposed to the frost in winter time may burst the carboys.

Prof. Lunge has made a series of tests on acids of different strength, using a mixture of three parts ice and one part common salt in which the thermometer sank to —20°C. The results are appended in tabular form:

Sp. Gr. at 50°C.	Degree Baumé.	Freezing-Point.	Fusing-Point.
1·671	58·	liquid at —20°C	.....
1·691	59·	.....	.....
1·712	60·05	.....	.....
1·727	60·75	—7·5°	—7·5°
1·732	61·	—8·5°	—8·5°
1·749	61·8	—0·2°	+4·5°
1·767	62·65	+1·6°	+6·5°
1·790	63·75	+4·5°	+8· °
1·807	64·45	—9·0°	—6· °
1·822	65·15	liquid at —20°C	.....
1·842	56·	.....	.....

—*Ber. der Chem. Ges.*, xiv, p. 2649.

ORGANIC CHEMISTRY.—*On the Production of Oxalic Acid from Paraffin Oil.*—J. Galletly and J. S. Thomson treated a paraffin oil, sp. gr. about ·800, obtained by the destructive distillation of shale with twice its volume of nitric acid, sp. gr. 1·3. The action is at first violent, but has to be completed with the aid of a gentle heat. After the reaction is finished the liquid separates into three layers. The lower one, consisting of the excess of the acid, on evaporation at a gentle heat, yielded a crop of yellow crystals which, after recrystallization, were obtained in a colorless condition. They proved to be pure oxalic acid. The authors identified the body by its reaction and analyses of the acid and its calcium salt.—*Chemical News*, Dec. 9, 1881, p. 284.

On the Preparation of Strontium Saccharate in the Working of Molasses and Syrups.—C. Scheibler has patented a process for the extraction of sugar from beet root molasses by the aid of strontium salts, which are now found so abundantly in Germany (see this Journal, 1881, p. 607). At a boiling temperature, either with or without the aid of pressure, tribasic strontium saccharate is precipitated, is separated from the liquid at the same temperature, and washed with hot water. This strontium saccharate is decomposed by water at a lower temperature into a less basic saccharate and free strontium hydrate. The former can then be used again in the separation of sugar from fresh portions of juice. This strontium process is to be used as a substitute for the "elution" process with calcium saccharate. —*Chem. Industrie*, Oct., 1881, p. 302.

On Some New Dye-colors, Compounds of Resorcin with Vegetable Acids.—The brilliant result of Baeyer's experiments on the union of phenols like resorcin with polybasic acids like phtalic acid, giving to the world the beautiful dyes fluorescein, eosin, cœruleine, and galleine have induced other experimenters to investigate the behavior of resorcin at high temperatures with several of the vegetable acids. Thus Fraude has examined the question of forming a compound of resorcin with tartaric and citric acids. One molecule of tartaric acid was heated for two hours to 165° to 168°C. with two molecules of resorcin with the addition of 1 per cent. of sulphuric acid. The result was a resinous mass, which after purification by solution in warm soda lye, precipitation with hydrochloric acid, repeating the operation if necessary, and then filtering through bone-black and evaporation over sulphuric acid, yielded a dark olive-green lustrous powder. This dissolves with

deep red color in alkaline carbonates, ammonia and dilute alkalies. The solutions, moreover, show a striking fluorescence like that seen with resorcin-phtalein. The bromine compound, obtained by adding alcoholic bromine to an alcoholic solution of the color, dissolves in alkaline carbonates with a fine crimson-red color.

The corresponding citric acid compound was obtained in a similar manner. The magnificent blue fluorescence of the red alkaline solution is even more intense than in the tartaric acid compound. The reaction with tartaric acid will take place even without the addition of sulphuric acid. Fraude calls these compounds tartreïns and citreïns, analogous to phtalëins.

Adolph Claus has also obtained resorcin-oxalëin. This compound only forms under strong pressure. By heating anhydrous oxalic acid and resorcin in open vessels it cannot be produced, and even in closed tubes the mixture has to be heated to 200°C. to produce the desired reaction. One molecule of oxalic acid and one of resorcin were used. The oxalëin was precipitated from the dilute alcoholic solution by addition of water or was gotten by evaporation as a red powder tolerably soluble in ether and possessing a formula $C_{20}H_{14}O_7$. It dissolves in alkalies whether in aqueous solution or in alcoholic with an intensely red or brownish color. In dilute solutions of light yellowish color it shows a strong moss-green fluorescence. A penta-bromine derivation was gotten as a dark-fiery red powder.—*Ber. der Chem. Ges.*, xiv, pp. 2558 and 2563.

On Peppermint Camphor (Menthol) and some of its Derivatives.—R. W. Atkinson and H. Yoshida have given menthol a careful examination. After repeated purification by distillation, careful pressing between filter-paper, etc., the authors obtained menthol melting at 42·2°C., solidifying at 40·3°C., and boiling at 212°C. Mr. Moriga has shown that menthol, when heated with acid bichromate solution at 120°C., yields an oil boiling at 404°C., having the composition of menthone, $C_{10}H_{18}O$ ("Jour. Chem. Soc.," March, 1881). The authors have repeated these experiments, using larger quantities. Menthone is a colorless mobile liquid, neutral to test paper, soluble in alcohol, chloroform, benzene and bisulphide of carbon; insoluble in water. If a solution of menthone in petroleum naphtha be heated with sodium, the solution formed decomposed by carbonic acid, the product shaken with water, rapidly separated from the oily layer, and set aside, minute crystals of menthol are obtained. Menthol, therefore, stands

to menthone in a similar relation to that which borneol stands to camphor. The menthol thus prepared from menthone melts at 42·2°C., but has a rotatory power of —39. The authors then prepared menthene, $C_{10}H_{18}$, by heating menthol with zinc chloride; the crude product was purified by careful fractionation and long digestion with sodium. The pure product distilled over constantly at 167·4°C. Menthene is a colorless liquid, moderately soluble in ether and alcohol, more soluble in benzene, turpentine and petroleum. By treating menthol with hydriodic acid, distillation, treatment with caustic soda, sodium, etc., a colorless hydrocarbon was obtained, which consisted chiefly of $C_{10}H_{16}$, with a small quantity of $C_{10}H_{18}$ or $C_{10}H_{20}$.—*Chem. News*, Dec. 9, 1881, p. 283.

On the Transformation of Morphine into Codeines and Homologous Bases.—The formula of morphine, $C_{17}H_{19}NO_3$, and that of codeine, $C_{18}H_{21}NO_3$, show that these two bases differ from each other by CH_2, and that codeine may be considered as derived from morphine by the substitution of a CH_3 group for one atom of hydrogen. How tried, in 1853, the action of methyl iodide upon morphine; but he obtained an isomer of the hydriodate of codeine, presenting none of the characteristics of an alkaloid salt. More recently, Matthiessen and Wright have determined something of the relation of morphine to codeine. By heating morphine with hydrochloric acid, they extracted the elements of water, and obtained as a result apomorphine. Codeine, submitted to the same treatment, likewise yielded apomorphine and also methyl chloride. There is, therefore, present in morphine an alcoholic OH group, and in codeine a group OCH_3. E. Grimaux, in considering these reactions, observed that morphine resembled the phenols in its characteristics, and it occurred to him that codeine might be the methyl ether of morphine, considered as a phenol. It then only remained to try this transformation by the usual means, viz.: heating with alcoholic potash or soda. Morphine was dissolved in alcoholic soda solution, the proportions being one molecule of morphine to one molecule of soda, and a quantity of methyl iodide, corresponding to two molecules, added. On gently heating the mixture, brisk action took place, which ceased after a few minutes. The reaction took place in the manner expected; but was complicated by a secondary reaction, and in the place of free codeine there was obtained the iodomethylate of codeine, $CH_3I,C_{17}H_{18}NO_3(OCH_3)$. The com-

pound thus obtained was identical in every respect with the addition product of codeine and methyl iodide.

On repeating the experiment, reducing the proportion of methyl iodide to half that employed in the first operation, free codeine was obtained, although in small amount—2 grams of hydrochlorate of codeine from 20 grams of morphine. The codeine thus obtained was in every respect identical with that obtained from opium. Upon operating with ethyl iodide, instead of the methyl compound, there was obtained a new base, $C_{19}H_{23}NO_3$, homologous with codeine. This base can be obtained in fine crystals, fusing at 83°, readily soluble in ether and alcohol, and a little less soluble in boiling water than codeine. To this class of ethers of morphine M. Grimaux proposes to give the name of *codeines.—Comptes rendus*, 92, 1140.

GLEANINGS IN MATERIA MEDICA.

BY THE EDITOR.

Euphorbia Lathyris, Lin.—This plant, known as caper spurge, is often cultivated as an ornamental plant, and to a certain extent naturalized in the United States. E. Sudour and A. Caraven-Cachin, having observed the effects of the seeds, state that they are drastic, purgative and contain the active principle in very variable proportion. An emetic effect always precedes the purgative action, even if the dose be small, and may manifest itself in 45 minutes, or may be retarded for three hours. The seeds have an irritating action upon the mucous membrane of the digestive canal, principally in the larger intestines and in the back-throat, if mastication has been sufficiently prolonged. The toxic effects, produced by large doses, may be divided into three periods: 1, the cold stage (vomiting, diarrhœa); 2, the stage of excitation (nervous affects, vertigo, delirium); 3, the stage of reaction (heat, abundant sweating). Opiates are the best and most prompt remedies against these effects. In doses of 6 to 12 seeds, which are recommended in several works, violent gastro-intestinal irritation may be produced. The drug being very active, and frequently variable, should not be employed in medicine.—*Rép. de Phar.*, Nov., 1881, pp. 526, 527.

A New Jasmine from Samoa is described by Ferd. Von Mueller, who regards it as having not merely horticultural value, but also for perfumery purposes. The following may be offered as a diagnostic limitation:

Jasminum Betchei.—Tall-climbing, glabrous; leaves opposite, unifoliolate; leaf-stalks, together with their stalklets, rather short; leaflets large, roundish-ovate, acutely narrowed at the summit, of chartaceous consistence, three-nerved towards the base, thinly and distantly veined; peduncles mostly axillary, bearing 1 to 3 flowers on long pedicels; teeth of the calyx 4 to 5, deltoid, minutely pointed, much shorter than the tube; corolla very long, pure white, divided not much beyond the middle into 6 to 10 lanceolate-linear gradually acuminated lobes, its tube narrow, only slightly widened upwards; anthers elongated, linear-cylindrical, short-pointed, on very thin filaments near or above the middle of the tube; style deeply enclosed; fruit-calyx not angular; fruitlets very large, 1 to 3 seeded; pericarp coriaceous, outside nearly black. On the edges of the forests in the lower mountain-region of Apia—only once found.—*Chem. and Drug., Austral. Suppl.*, August, 1881, p. 29.

The Fruit of Leptomeria acida, or Australia currant, according to E. H. Rennie, owes its intensely sour taste chiefly to malic acid, which, besides small quantities of citric and tartaric acids, is present to the amount of more than 40 per ct. in the residue obtained by neutralizing the juice with sodium carbonate and evaporating to dryness. The ash contains a considerable quantity of patassium carbonate with mere traces of calcium carbonate.—*Jour. Ch. Soc.*, 1881, p. 1033; *J. Roy. Soc., N. S. W.*, xiv.

The bark of Persea Lingue (*Laurus caustica*) is described by P. N. Arata as occurring in commerce in curved pieces 10 to 15 cm. broad and 5 to 9 mm. thick; it has a peculiar aromatic odor, the sp. grav. ·896, a rugged outer surface, a dark orange color, lighter around the irregular cracks and variegated with zones of white spots, and a smooth inner surface with slight longitudinal ridges and of a color like that of the outer surface. The tree is 25 to 30 feet high, has a stem about two feet in circumference, and is widely diffused in Chili between the provinces of Acongaqua and Chiloé, and in the Argentine Republic between Limay and Neuquen. The bark was found to contain moisture 2·53, constituents soluble in ether (resin, volatile oil, little tannin) 17·71, constituents soluble in alcohol (tannin) 24·63, constituents soluble in water (proteids, gum, sugar, etc.) 14·55, constituents soluble in hydrochloric acid (calcium oxalate, etc.) 2·63; wood fibre and loss 37·95 per cent. Lingue-tannin $C_{17}H_{17}O_9$ is reddish white, soluble in alcohol, acetic ether, acetone, methyl alcohol, slightly solu-

ble in water, gives a green color with ferric salts, and yields on dry distillation water and catechol, on treatment with nitric acid oxalic and picric acids, and on heating with potassa solution phloroglucol and probably protocatechuic acid; it is analogous to the tannin of quebracho colorado, catechu, etc. — *Ibid.*, 602; *Anal. Soc. cientif. Argent.*, x, 193.

Chinese and Japanese Nutgalls.—C. Hartwich characterizes four kinds of these nutgalls as follows:

A. Galls smooth, flat, oftenlobed, with stomata and without resin-ducts: Kakrasinghu-galls, from *Rhus Kakrasinghu*, Royle.

B. Galls more or less pubescent; stomata absent or very rarely present; resin ducts present.

a. Galls slightly pubescent, always unbranched, roundish-oblong, somewhat plum-shaped, the apex often prolonged into a short point, and this occasionally curved; parenchyma at first tangentially elongated, but beyond the middle of the shell radially elongated; starch granules unaltered: pear-galls.

b. Galls very pubescent, mostly branched; parenchyma tangentially elongated, internally only isodiametric.

1. Pubescence dense, light-brown; branches numerous; starch granules unaltered: Japanese galls.

2. Pubescence less dense, greenish-brown; branches less numerous or almost absent; starch pasty: Chinese galls.—*Archiv d. Phar.*, July, 1881, p. 31–34.

Quebrachitannic acid, according to P. N. Arata, is best prepared from the so-called gum of the quebracho colorado, *Quebrachia* (*Loxopterygium*) *Lorentzii*, *Grisebach*. The gum is purified by treatment with alcohol, then dissolved in boiling water, and the hot filtered liquid set aside, the reddish deposit is collected on a filter, the mother liquor precipitated by a mineral acid or by table salt, and the precipitates are rapidly washed, pressed between bibulous paper and dried over sulphuric acid. The tannin is pale red, amorphous, yields a cinnamon-colored powder, is readily colored darker by alkalies, or by prolonged boiling of its solution, has an astringent taste, and is insoluble in carbon bisulphide, chloroform, oil of turpentine and benzene. Its aqueous solution yields white precipitates with gelatin, albumin, alkaloids and lead salts, the latter, on heating, acquiring a rose and then a chocolate color; with ferric chloride, a green liquor is produced, changing to dark red, and on the addition of sodium acetate, to

black. On dry distillation the tannin yields catechol; strong nitric acid converts it into oxalic and picric acids, and by fusion with potassa it is resolved into phloroglucol and protocatechuic acid. The tannin contains C 52·52, H 5·11.

Quebrachicatechin (see "Am. Jour. Phar.," 1879, p. 152) extracted by ether from the mother liquor from which quebrachitannin has been precipitated, is freely soluble in alcohol and ether, sparingly soluble in hot water, gives rose-colored precipitates with basic lead acetate and with mercurous nitrate; blackish with a mixture of ferrous sulphate and sodium acetate; reduces silver nitrate and gold chloride; is colored yellow by nitric acid, red by sulphuric acid, yellowish by sodium hypochlorite, green by Fehling's solution; does not precipitate gelatin or the alkaloids.—*Jour. Chem. Soc.*, Dec., 1881, 1152, from *Anal. Soc. Cient. Argent.*, 1879.

New Cinchona Alkaloids.—An alkaloid has recently been isolated from cuprea bark by B. H. Paul and A. J. Cownley, W. Geo. Whiffen, and D. Howard and J. Hodgkin, the papers having been published in "Phar. Jour. and Trans.," Dec. p. 17, 1881, 497, and "Chem. News," Dec. 23, p. 301. The alkaloid resembles quinine in the sparing solubility of its sulphate in water, in the emerald green color produced by chlorine water and ammonia, in the fluorescence of its solution, and in its not being precipitated by the *cautious* addition of potassium iodide; but differs from it in being soluble in ether only, when *freshly* precipitated, and in crystallizing from this solution in thin plates of a pearly lustre. The cold saturated solution of its sulphate in water is precipitated by Rochelle salt (like quinidine and cinchonidine).

C. H. Wood and E. L. Barret ("Chem. News," Jan. 6, 1882) have not succeeded in getting some of the new base from the alkaloid products of several hundred samples of cuprea bark; and they call attention to a peculiar behavior of the mixed alkaloids, quinine and quinidine, which they had at first observed with the products of cuprea bark, this bark being rich in quinidine. The etherial solution of the total alkaloids would frequently furnish a notable quantity of crystals that did not resemble those of any of the known cinchona alkaloids obtained under like circumstances. The previous analysis not having revealed the presence of a distinctive base, a mixture of two grains of pure quinine and one grain of pure quinidine was dissolved in ether, and yielded an abundant crop of the same crystals,

and these, on being converted into neutral sulphate, furnished a quantity of pure sulphate of quinine, while the mother liquor contained quinidine.

Perhaps the easiest way of obtaining this compound is to dissolve one part of pure quinine in 30 or 40 parts of ether, and add to the liquid a saturated etherial solution of a like quantity of pure quinidine; a crystalline precipitate forms in abundance, which is much less soluble than either of its constituents, 100 cc. of ether at common temperatures dissolving only 0·5 gram of it.

A new alkaloid, called *cinchonamine*, has been obtained by Arnaud ("Rép de Phar.," Nov., 1881, p. 507–509) from a bark of Santander, Columbia, which seems to belong to the cuprea barks and which is described as being very dense, of a deep red-brown color and having a resinous fracture. The hydrochlorate of the new alkaloid is easily separated from the cinchonine, also present, by its sparing solubility in cold water. The alkaloid is insoluble in cold water, dissolves in 100 parts of ether, sp. gr. ·720, and in 31·6 parts of 90 per cent. alcohol, crystallizes from boiling alcohol in colorless shining anhydrous prisms, melts at 195°C., is dextrogyre (dissolved in alcohol = +117·9), has a slight bitter taste and yields sparingly soluble neutral salts, which in acid solution are not fluorescent. Its composition is $C_{19}H_{24}N_2O$.

O. Hesse ("Phar. Jour. and Trans.," Dec. 24, 1881, p. 517) has found in a cuprea bark considerable quantities of aricine and cusconine, some cinchonine, and a small quantity of an alkaloid that had a great resemblance to cinchonine, though in several points differing essentially from it. The bark corresponded in fracture and hardness to the true cuprea bark, but had a pale reddish color. The cinchonamine of Arnaud stands without doubt in very near relation to aricine.

Hesse ("Berichte," 1881, p. 1683–1685) has also obtained a new alkaloid, *cinchamidine*, $C_{20}H_{26}N_2O$, by fractionally precipitating the mother liquor from homocinchonidine sulphate with neutral sodium tartrate, when the new alkaloid is contained in the last precipitates. In the pure state, the alkaloid crystallizes in colorless scales and flat needles, or from strong alcohol, in short thick prisms, melts at 230°C., is levogyre (—98·4°) and its acid solutions are neither fluorescent nor do they yield a green color with chlorine and ammonia. Its sulphate has about the same solubility as the sulphate of homocinchonidine, and the alkaloid is frequently and in notable quantities present in commercial cinchonidine.

Lycopodine, $C_{32}H_{52}N_2O_3$, is a new alkaloid obtained by K. Boedeker from the aqueous solution of the alcoholic extract of *Lycopodium complanatum*, Lin., by precipitating with basic lead acetate, treating the filtrate with sulphuretted hydrogen, adding an alkali and agitating with ether. The alkaloid is crystalline, melts at 114°C., is freely soluble in alcohol, ether, benzene, water and amyl alcohol, and has a very bitter taste; its hydrochlorate crystallizes with $1H_2O$.—*Ann. d. Chem.*, ccviii, 363–367.

Soja hispida, Moench.—The seeds of this leguminous plant which are used in India in the preparation of a sauce called *soy*, were found by A. Levallois to contain a peculiar slightly sweet sugar, which on precipitation by ether from its alcoholic solution forms a very deliquescent mass. It does not reduce Fehling's solution, yields glucose on treatment with dilute mineral acids, has a rotary power of about +115, and after inversion of +35, ferments readily with yeast and with nitric acid yields mucic and oxalic acids. In the formation of mucic acid the sugar resembles melitose, and it has also some analogy with cane sugar.—*Rép. de Phar.*, Nov., 1881, p. 518.

Myronic Acid in the Seeds of Brassica Rapa.—H. Ritthausen has found a considerable proportion of potassium myronate in yellow and brown turnip seeds from India, as well as in such grown in East Prussia, and the seeds and press cakes yielded oil of mustard. However, rape seeds, from Brassica Napus, grown in Russia and in Prussia, were free from myronic acid, and yielded not a trace of oil of mustard.—*Phar. Ztg.*, Oct. 26, 1881, p. 645.

Reaction of Oil of Peppermint.—Flückiger observed (1871) that oil of peppermint acquires a blue-green color with nitric acid, sp. gr. 1·2. In 1878, A. Schack observed that an alcoholic solution of the oil will gradually acquire a copper-green color in the presence of salicylic acid. On adding the oil to melted salicylic acid a blue-green mass is at once produced, soluble in alcohol. All acids experimented with, including carbolic acid, but not carbonic acid under ordinary pressure, give a similar reaction, particularly in the presence of alcohol, application of a moderate heat being necessary in some cases. A mixture of 1 cc. glacial acetic acid and one drop of oil of peppermint, slightly warmed, shows the color very beautifully, it being blue in transmitted and blood-red in reflected light, and after diluting with alcohol until the blue tint has nearly disappeared, the red reflection is still observed in the sunlight on pouring the liquid out in a thin stream, and looking vertically into it. Menthol and oil of crisped mint do not show the reaction.—*Archiv d. Phar.*, Dec., 1881, pp. 428–430.

RESORCIN AND ITS ALLIES.

For the introduction of many new therapeutic agents we are indebted to the researches of German chemists. Resorcin, for example, has of late attracted considerable attention both as an antiseptic and antipyretic. It was discovered about fifteen or twenty years ago, by Hlasiwetz and Barth of Vienna, who obtained it by fusing galbanum resin with potash. Being isomeric with orcin, a substance found in the lichens used for making litmus, and having been first obtained from a resin, it received the name of resorcin. It is also known as resorcenal, whilst its full chemical title is metadioxylbenzene. Its formula is $C_6H_4(HO)_2$; and it is isomeric with *hydrochinon*, a substance recently introduced by Brieger as an antipyretic. Resorcin is now rarely prepared from galbanum, newer and better modes of manufacture having been recently introduced. It is economically obtained by mixing with chalk the wash and mother liquid left in making brazilin from Brazil-wood, evaporating to dryness, and subjecting the residue to dry distillation; or it may be made by passing the vapour of benzol through sulphuric acid, dibenzolsulphuric acid being formed. It is used in large quantities in the manufacture of eosine and other coal-tar dyes.

Resorcin is a neutral crystalline body, soluble in water, alcohol, ether, and in fact, in all fluids with the exception of chloroform and bisulphide of carbon. It crystallizes only from very concentrated solutions, in beautiful little feathery crystals. When quite pure and freshly prepared, it is colorless; but, on exposure to the air, it quickly acquires a pinkish color. It melts at 210° Fahr., boils at 570° Fahr., and distils without residue. It has a strong, peculiar, sweet, and somewhat unpleasant irritating taste. When thrown on the fire, it burns with a bright flame. A very characteristic test is afforded by dissolving a few grains in fuming sulphuric acid. An orange-red solution is formed, which gradually darkens, and changes after a time, first to greenish-black, and then to pure blue, becoming purple-red on gently warming.

From a consideration of the atomic relations existing between resorcin and phenol, Dr. Julius Andeer, of Würzburg, was led to suspect that they might have a similar physiological action, and such, on investigation, proves to be the case. A 1 per cent. solution of pure resorcin arrests almost all forms of fermentation. Blood, urine,

infusion of pancreas, and other substances which ordinarily quickly undergo decomposition, can be kept for an almost unlimited time by the addition of a few grains of this new antiseptic. Even when decomposition has already set in, resorcin speedily arrests it. Wounds of the cornea, conjunctiva, and the mucous membranes, when irritated and inoculated with decomposing organic matter, speedily heal without the production of constitutional symptoms, if cauterized with resorcin. Its application has been found equally efficacious in the treatment of erysipelas and subcutaneous abscess. Dr. Constantine Paul finds that even weak solutions speedily and effectually disinfect typhoid stools. It is a true process of disinfection, he says; for resorcin itself, being odorless, does not act as so many so-called disinfectants do, by substituting one smell for another. Of such great value does Dr. Paul consider resorcin as a deodorizer, that, in diarrhœa, he often uses it as an enema, so as to disinfect the stools before they are passed.

The action of resorcin on the lower animals has as yet been but little investigated; but it would appear from the experiments of Dujardin Beaumetz and Callais, that, in dogs and rabbits, it exerts a powerful action on the nervous centres, producing epileptiform convulsions. The respiratory movements become rapid and superficial, and usually the heart continues beating for some time after breathing has ceased. Professor Lichtheim of Berne, found that in a man it produced giddiness and buzzing in the ears, the face became flushed, the eyes bright, and the pulse and respiration were quickened. In from ten to fifteen minutes the skin became moist, and soon the whole body was bathed in perspiration. It has been said that one of the great advantages of resorcin is that it is destitute of toxic properties; but, from some observations recently recorded by Dr. Murrell, it would appear that, in large doses, it is capable of producing very decided symptoms. The patient was a young woman who suffered severely from asthma. After a few preliminary trials with smaller doses, she was given, during a severe paroxysm, half a drachm in a little milk. She experienced no difficulty in taking it, her breathing became easier almost at once, and in half an hour she fell asleep, sleeping comfortably for three hours, when she awoke free from shortness of breath. The urine passed on the following day was of an olive-green color, as if carbolic acid had been taken. The same dose was given on two other occasions during a paroxysm, but failed to afford relief. The dose was then increased to a drachm. Immediately on taking the powder, she experienced a

decided sensation of giddiness; this was followed by heaviness over the eyes, and drowsiness; the dyspnœa was relieved, and, in a quarter of an hour, she was fast asleep. This was tried on four different occasions, and always with the same result. The pupils were not affected, there was no diplopia, and no tinnitus aurium. The action on the urine was more marked with the larger doses. She was now given a drachm and a half, without the production of symptoms other than those already mentioned. On increasing the dose to two drachms, decided effects were produced. The patient complained that it flew to her head, and she felt giddy, and had "pins and needles" all over. In a few minutes she became insensible, and was found lying on her side faintly moaning, her eyes closed, and her hands clenched. She was in a profuse perspiration from head to foot; there was complete loss of voluntary power and reflex action, the pulse at the radials was weak and thready, and the temperature in the axilla was only 94° Fahr. Restoratives were applied, consciousness was soon restored, and the temperature gradually returned to the normal. It is stated that the resorcin first used in this case was impure, being contaminated with carbolic acid; but the specimen from which the two-drachm dose was taken had been specially prepared, and contained not more than 2 to 3 per cent. of impurity.

Resorcin is not absorbed by the healthy unbroken skin; and, even when rubbed in, it produces no sign of irritation. Hypodermic injections of a 2 per cent. solution sometimes give rise to cramps and painful twitchings, but abscesses are of rare occurrence. Therapeutically, it is recommended in a great number of diseases. It is said to be invaluable as a surgical dressing, incised and punctured wounds always healing by first intention when treated by the 1 per cent. solution. In the form of spray—$\frac{1}{2}$ per cent.—it is claimed for it that it possesses the following advantages over carbolic acid: It is more soluble in water, it is almost destitute of smell, its toxic action is slight, and it is less irritating. It is recommended as a caustic for cancerous and syphilitic sores of the mucous membranes, and it is said that it destroys the diseased tissues thoroughly and painlessly. Given in large doses, it has been used in intermittent fever, but the recorded cases are too few in number to enable us to express an opinion as to its value. As an inhalation, it is recommended in diphtheria and in diphtheritic affections of the throat. A 1 per cent. solution dropped into the ears arrests the offensive discharge from which scrofulous children so frequently suffer.

Its antipyretic action renders it valuable in all febrile diseases; and in Germany it has been freely and extensively administered in typhus and typhoid, in acute rheumatism, pneumonia, erysipelas, and phthisis. The fall of temperature, however, is usually of briefer duration than after the administration of quinine or salicylic acid. It is sometimes used as an injection in gonorrhœa and gleet, and in vaginitis and cystitis. Andeer considers that it is of inestimable value in all affections of the stomach, and especially recommends its administration in gastric ulcer, from its peculiar action on mucous membranes, which heal without the formation of a cicatrix after cauterization with resorcin. The usual dose for an adult is from 15 to 20 grains, three or four times a day, but larger quantities are often given. It may be taken in the form of a mixture dissolved in water, and flavored with a little glycerin and syrup of oranges. It is sometimes given in powder in a wafer or empty capsule. In the case of an overdose, emetics with olive oil, and a hypodermic injection of atropia, would be the appropriate remedies.

Hydrochinon, another member of this group, possesses even more decided antipyretic properties than resorcin, 3 grains reducing the temperature very quickly, without the production of any unpleasant symptoms. It can be used hypodermically, as it is quite free from caustic properties, and produces no more irritation than so much water. It is recommended that 10 per cent. solution should be employed, and that 5 or 10 minims should be injected into each arm.

Chinoline is another, although a somewhat more distant, relative of resorcin, whose properties have recently been investigated by Dr. Julius Donath of Baja, in Hungary. Its formula is C_6H_7N, it being the first of a homologous series of eight similarly constituted alkaloids, each member of which differs from its predecessor by the addition of CH_2. It is a transparent, colorless, oily fluid, having a penetrating odor resembling bitter almonds, and a hot, pungent taste like peppermint. It is but sparingly soluble in cold water, but dissolves more freely in hot. It mixes in all proportions with alcohol and ether, and is a solvent for sulphur, arsenious acid, and camphor. It is manufactured on a large scale from coal-tar, chinoline and aniline being found almost without other admixture in the last portions of the distillate known as "dead oil." It is an energetic bacteria poison, a one-fifth per cent. solution arresting fermentation in Bucholz's fluid. In the same proportion it prevents lactic acid fermentation, although it exerts

little, if any, action on yeast-cells. It forms several salts, some of which seem destined to play an important part in the treatment of disease. The tartrate and salicylate are both colorless, the former occurring in the form of small acicular crystals, whilst the latter is an amorphous powder. They both have a peculiar pungent smell, and a somewhat irritating, though by no means an unpleasant taste. From the observations of Dr. Donath, of Dr. Leopld Loewy of Fünfkirchen, and of Dr. Salkowski of St. Petersburg, it would appear that the tartrate of chinoline possesses antiperiodic properties of the highest order; and there is reason to suppose that it will, to some extent, replace quinine, especially as it can be turned out at one-fifth the price, the dose being almost the same. Dr. Loewy records forty cases of intermittent fever successfully treated with the new remedy, besides many cases of neuralgia. The only objection to its use is that it occasionally upsets the stomach.

It must be remembered that, although these remedies are being extensively tried both in France and Germany, we have as yet had but little experience of their use in this country; and, until their physiological action has been more fully investigated, a certain amount of caution should be exercised in giving the larger doses that have been recommended.—*Phar. Jour. and Trans.*, Dec. 21; *Brit. Med. Jour.*

VARIETIES.

EFFECTS OF REMOVING MOUNTAIN FORESTS.—Attention has long been given to devising means to limit the ravages of these torrents, which ruin the land, threaten estates, destroy roads, and sometimes even compromise the existence of villages. Walls have been built along the banks to protect them, or across the streams to allay the force of the waters. The most efficacious means, however, as yet discovered, has been to maintain the woods on the slopes of the mountain. The effect of cutting away the trees in promoting the formation of torrents has not been doubted by the inhabitants of mountainous regions, and is clearly set forth by M. Surrell, who says: "When we examine the tracks in the midst of which torrents of recent origin have been formed, we perceive that they have in all cases been despoiled of their trees and bushes. If, on the other hand, we examine hills whose sides have been recently stripped of wood, we observe that they are cut up by numerous torrents, which have evidently been formed very lately. Here is a remarkable double fact: wherever there are recent torrents there are no longer forests, and wherever the ground is cleared these torrents are formed; and the same eyes that see the woods

fall on the declivity of a mountain may see appear there immediately a multitude of torrents."

The disastrous consequences of removing the woods from the Alps began to attract attention in the last century, and have since been discussed in many publications and official reports. In 1853 the prefect of the department of the Lower Alps said in a report to the Minister: "If prompt and energetic measures are not taken, it will be almost possible to designate the precise moment when the French Alps will become a desert. The period from 1851 to 1853 will produce a new diminution in the number of the population. In 1862 the Minister will remark a continuous and progressive reduction in the number of hectares devoted to agriculture; each year will aggravate the evil, and in a half-century France will count more ruins and one department less." The departments of the Upper and Lower Alps actually lost thirty thousand inhabitants, or one-ninth of their population, between 1851 and 1876. A law for recovering the mountains with wood, which has been prepared by M. Forcade de Rouguet, director-general of the administration of the forests, was adopted by the legislative bodies in 1860, and was put in operation shortly afterward.—M. J. Cleve, *in Popular Science Monthly* for October, 1881.

To Detect Oil Pennyroyal in Oil Peppermint.—Messrs. J. J. Quetting & Co., having found much oil of peppermint in the market adulterated with oil of pennyroyal, they have sent postal cards to their customers warning them of the fact and giving the following test, which they indorse as reliable:

Take one dram chloral hydrate, and a half dram C. P. sulph. acid; mix together in a glass mortar, add a few drops of alcohol, and stir until it becomes clear. Then use this mixture in equal proportions with the suspected oil in a small porcelain dish, and mix thoroughly together. The result is a fine cherry color if the oil is pure; otherwise if adulterated with pennyroyal, it turns a dark olive green, more or less as to quantity of adulteration.—*Oil and Drug News.*

Uses of Chaulmoogra Oil in Skin Diseases.—A foreign exchange says, Chaulmoogra oil, which has obtained a certain reputation in India for the amelioration of the symptoms—I will not say the cure—of leprosy, has been introduced into this country with the somewhat vague reputation of being useful in skin diseases. It has answered well in some cases of eczema of the face which had passed the moist stage and tended to become dry. It seems to act as a mildly stimulating astringent, but its applicability is certainly limited, and experiments with it in Germany, recently reported, have not increased its reputation. It is in the strumous forms of eczema of the face in children and young persons that the best results from its use have been attained.—*Med. and Surg. Reporter*, Nov. 26, 1881.

Precipitated Sulphur for Pimples on the Face.—Dr. Gage Parsons ("London Practitioner") says that the usual lotion of the flowers of sulphur with glycerin and water is undoubtedly a valuable remedy, but

from the readiness with which the sulphur separates it is inelegant and inconvenient, while it is not quite satisfactory in its results. A far more efficacious mode of using sulphur is to dust the face with pure precipitated sulphur every night with an ordinary puff used for toilet purposes. Recently two severe cases of acne of two years' standing which had resisted the ordinary methods of treatment, yielded at once to sulphur thus applied. If the sulphur be scented with oil of lemon or roses it will form an elegant cosmetic.—*Louisv. Med. News*, Nov. 12.

LOTION FOR FRECKLES.—

℞	Hydrarg. bichlor.,	. . . .	gr. vi
	Acid. muriat. dil.,	. . . .	f℥i
	Aquæ,	. . . . .	f℥iv
	Alcoholis,	. . . . .	
	Aquæ rosæ,	. . . .	*aa* f℥ii
	Glycerinæ,	. . . .	f℥i M.

Apply at night, and wash off with soap in the morning.—*Cinc. Lancet and Clinic*, Nov. 26, 1881.

CHROMIC ACID FOR THE REMOVAL OF WARTS.—Dr. W. Allen Jamieson says in "Practitioner" for September, 1881, that chromic acid, one to one of water, is by far the best remedy. The skin round each wart is first protected by painting it with oil, and then the wart itself is soaked with the solution of chromic acid; this absorbs water from the tissues, coagulating and hardening the albuminous tissues at the same time, and the unsightly warts soon disappear. These warts seldom appear after puberty on the hands, but a healthy girl, well grown, aged fifteen, came to the writer some time since with dozens of them on her hands, which had annoyed her for six years. Of course they much interfered with work, being always in the way. Steady use of the chromic acid removed them in a few weeks.[1]—*Med. and Surg. Reporter*, Nov. 26, 1881.

CHLORIDE OF ZINC AS A TEST FOR ALKALOIDS.—Starting from the idea that the color reactions in alkaloids are caused by subtraction of water from the reagents used, Signor Czumpelitz recently devised a method of distinguishing alkaloids, and successfully used chloride of zinc for the purpose. The substance to be examined is perfectly dried and then moistened with two or three drops of chloride of zinc solution (one gram of chloride of zinc, 30 cc. of hydrochloric acid, and 30cc. of distilled water); then the substance is dried anew in a water-bath. In this way strychnine is colored vermilion, thebaine yellow, narceine olive green, delphine brown red, berberine yellow, veratrine red, quinine pale yellow, digitaline chestnut brown, salicine violet red, santonine violet blue, cubebine carmine red.

COCA A CURE FOR MORPHINISM.—"La Independencia Medico" quotes the following case: A lady had been in the habit of alleviating her suffer-

[1] Twelve years ago we have used chromic acid for the removal of warts with one or two applications. The top of the wart was moistened with water, a small quantity of the crystallized acid was applied and allowed to dissolve and to dry again, care being taken to prevent its spreading over the skin. No pain was experienced and a second application was rarely necessary.—EDITOR. AM. JOUR. PHAR.

ings with morphine, of which drug she finally took sixteen grains a day. Thirty hours after having taken her last dose she was found in a condition of great anguish, excitation, and inquietude. During the night chloral hydrate and iodide of potassium were given to allay the excitation and produce sleep. The next day she was very weak and restless, hardly able to speak, and tormented with vomiting; the pulse was 150. The fluid extract of coca was administered in doses of a tablespoonful. The first dose had but little effect. The second was followed by a wonderful change; the pulse fell to 85, the countenance assumed color and animation, and the vomiting ceased. The patient began to speak, and was in excellent spirits. She slept almost half of the following night, awoke refreshed, with a pulse of 75, took breakfast, and digested it well. She continued to improve, rode in a carriage for quite a distance, and left the city next day, taking with her an eight-ounce bottle of coca, which remedy she continued to take in diminishing doses. When she ceased taking it she was enjoying good health, without the use of morphine.—*Med. Record; Louis., Med. News*, Nov. 19, 1881.

Quinine for Prevention of Sunstroke.—Though somewhat out of season, we think it worth while to enter for preservation the means of prevention of sunstroke recommended by an English surgeon. He says:

For seven years of residence in Central China, upon the banks of the Yang-tze-kiang, which annually overflows its banks, I found nothing so protective against sunstroke as ten grains of sulphate of quinine suspended in a wineglassful of sherry, and taken before going out at midday, when required to brave the sun-heat, which is oftener above than below Calcutta temperature. I have tried this plan in so many cases that I feel certain that quinine is as prophylactic against sunstroke as against malarial fever. It was while endeavoring to neutralize the miasma which causes the latter that I noticed how completely I felt braced against the effects of the sun-heat. I should be inclined to dissolve the quinine in hydrobromic acid instead of the sherry.—*Med. and Surg. Reporter*, Oct. 22, 1881.

Pilocarpine and Muscarine.—Dr. S. Ringer has made the curious observation that the antagonism of pilocarpine and extract of muscaria on the frog's heart varies in different months. In the summer months pilocarpine always strongly antagonizes extract of muscaria, but in the winter months there is often no antagonism, and even when it occurs, it is generally slight. This difference is due to temperature.—*Med. and Surg. Rep.*, Nov. 19, 1881.

The Tea-Plant.—The vegetation on the southern slopes of the eastern Himalayas, three or four thousand feet above the sea, though by no means luxuriant, is said to be very agreeable and of much interest to the botanist. Among the plants native to these slopes, planted in the course of nature during the preparation of the earth for man, and left wild with the elephant and the leopard, is a shrub growing from twenty to thirty feet high, and well worthy to be selected for pleasant foliage and fine flowers. The lanceolate leaves are from two to six inches long, and the flowers are large

and white, very fragrant, in clusters of two or three in the axils of the leaves. This is the tea-plant, of the genus *Thea*, very nearly allied to the genus *Camellia*, of which the *Japonica* and other species from China and Japan are favorite cultivations of the greenhouse in Europe and this country. Nowhere in the world but on the borders of the Himalayas and in the wild regions of Assam is the tea-plant found growing uncultivated, but it was not discovered in this its natural habitation until the present century. As a cultivated plant, the Chinese have certainly had it since the fourth century, and they claim it to be indigenous to their own soil—just as confidently as they claim the parentage of numerous valuable articles. China has given tea to the world, and has furnished a favorable home to the plant, which is nevertheless quite as well suited in its native land, farther east. When it became known in England that the tea-plant grew native in the highlands of the Himalayas, English companies engaged extensively in the cultivation of tea in that region, and finally, after the correction of notable failures in methods of culture and of cure, it appears that the finest teas of Asia are those of these mountain plains and the choicest plants are of variety *Assamica*, lately propagated from the wild shrub of the mountains.—*From "The Chemistry of Coffee and Tea,"* by Professor Albert P. Prescott, *in Popular Science Monthly for January.*

THE ADMINISTRATION OF IRON.—The tendency on the part both of prescribers and large drug manufacturers is to combine iron with other tonics, in the form of elixirs, syrups and wines of iron and quinine, iron and strychnine, strychnine and pepsin, and so on *ad infinitum*. The combinations with pepsin are a shameful waste of this valuable remedy, and well calculated to bring it into disrepute. None of the others above mentioned should be used for or in any gastric derangement, except with due regard to time of administration. The most suitable time to give iron is one hour before meals, or four hours afterward.—*A. W. Perry, M.D., in Western Lancet.*

CAMPHORATED CHLORAL HYDRATE.—M. Simons having observed a case of poisoning by a mixture of equal parts camphor and hydrate chloral, conceived the idea of employing the same preparation in therapeutic doses. Twenty drops of this mixture in a draught cut short an attack of acute mania. M. Simons believes that it could be employed with good results in hydrophobia, tetanus and delirium tremens.—*Med. Press and Circ.; New York Medical Abstract.*

CHLORO-CARBOLATED COTTON FOR TOOTHACHE.—J. B. Garrison advises the following for cases of toothache, due to exposure of a nerve, and has found it serviceable in many cases of dental neuralgia: Chloral hydrate and carbolic acid are combined in equal proportions, making a liquid, in which is placed a sufficient quantity of the cotton of the populus canadensis, or cotton-wood tree, and allowed to remain a day or two. It is then pressed out so as to remove the superfluous fluid, and it is ready for use. The cavity of the aching tooth is thoroughly dried, and then filled with this chloro-carbolated cotton and covered with wax or some other material

impervious to water. The cotton from the cotton-wood tree is much better, he says, than ordinary cotton, on account of its being firmer and shorter, and so more easily subdivided and made into pellets to be introduced into small cavities. It can be easily procured in the month of June in any of our river bottoms.— *Western Med. Reporter; St. Louis Courier of Medicine*, Nov. 8, 1881.

Oil of Juniper Antiseptic Catgut.—Dr. Kocher, of Berne ("Deutsche Medicinische Zeitung"), claims that oil of juniper has very permanent effects as an antisceptic, and employs the following method of preparing catgut with it: The required quantity of catgut is placed for twenty-four hours in pure oil of juniper, and immediately subsequent to this is transferred, tightly wound on a flat reel ten inches long, to ninety-five per cent. alcohol. If placed in glycerin for a day prior to immersion in alcohol it becomes more pliable. When desired the catgut must be cut exactly where the edges of the reel turn.—*Chicago Med. Review.*

Solvent for Gallic Acid.—Mr. Frederick Long writes to the "British Medical Journal" to say that he has accidentally discovered a method of dissolving gallic acid. Having a short time since a case of hæmaturia, the result of uric-acid gravel, he chanced to prescribe a mixture containing half a drachm of gallic acid and a drachm and a half of citrate of potassium, and, to his surprise, he found he had a perfectly clear liquid, the gallic acid being completely dissolved. He has since made further experiments, and he finds that, with care, twenty grains of citrate will dissolve as much as fifteen grains of gallic acid in an ounce of water, and remain quite clear for any length of time. To be able to give gallic acid in perfect solution is a great advantage, as absorption must take place more rapidly when the salt is in solution than when simply suspended in mucilage. The citrate, being a very simple salt, can do no harm in any cases in which gallic acid is required. The only means of dissolving gallic acid for medicinal use heretofore known to Mr. Long have been alcohol and boiling water, both of which are practically useless.—*Phil. Med. Times*, Nov. 19.

Boracic Acid Poisoning.—The prevailing opinion is favorable to the use of boracic acid in catarrhal affections of mucous membranes. Nobody apprehends poisonous effects from this remedy. Mododewkow, of Moscow, relates two cases of fatal poisoning that are well calculated to disturb the assurance of safety in the use of boracic acid. A patient with a pleuritic exudation was tapped, and the cavity subsequently washed out by injections with a five per cent. solution of the acid, a part of which was allowed to remain in the pleural cavity. A similar operatiou was performed upon a lumbar abscess. Both patients soon complained of nausea, followed by incessant vomiting and hiccup. An erythema appeared in their face, whence it rapidly extended over the trunk and extremities. The temperature was but passingly increased and sunk to 36°C. The pulse became filiform, and cardiac paralysis supervened with symptoms of utter exhaustion. The autopsy of the second patient exhibited punctated ecchymoses upon the anterior wall of the right ventricle, otherwise nothing remarka-

ble. Morphine exercised no control over the emesis. The mind of the patients was at no time clouded.—*Louisville Med. News*, Nov. 19, 1881.

IODOFORM INTOXICATION.—A. Henry ("Centralblatt für Chirurgie," October, 1881), mentions two cases of intoxication with iodoform, both of which terminated fatally, with coma, aphonia, paralysis of sphincters, retracted abdomen and accelerated pulse. In one case more than 100 grams of iodoform had been administered. The threatening symptoms appeared on the second day, and death occurred on the sixth. In the second case the symptoms appeared on the ninth day, and death ensued on the sixteenth.—*Chicago Med. Review*, Nov. 20, 1881.

ARNICA IN FURUNCULOSIS.—Dr. Planat ("Revue de Thérapeutique Médico-Chirurgicale") claims very good results from the use of arnica paste in the treatment of furuncles of a purely inflammatory character. Arnica, according to him, aborts furuncles with great promptitude, probably by reason of its action on the vaso-constrictor nerves of the superficial vessels of the skin. The inunctions are made with the following mixture: Extract of fresh flowers of arnica, two drachms and a half; honey, five drachms. If this mixture prove to be too liquid, a small quantity of lycopodium should be added to it, to render it sufficiently adhesive. This paste is spread in moderate thickness on waxed linen or on diachylon plaster and applied to the furuncle. The dressing should be renewed every twenty-four hours. Two or three applications generally suffice to abort furuncles. Occasionally, when due to diathetic conditions, internal treatment will be rendered somewhat necessary.—*Chicago Med. Review*, Nov. 5, 1881.

THE DISADVANTAGES OF COD-LIVER OIL FOR YOUNG CHILDREN.—According to the "Revue Médicale," the Council of Public Health has recently submitted for the sanction of the Academy of Medicine of Paris a report on the disadvantages of cod-liver oil administered to infants and young children. The commission on the hygiene of infancy has not yet reported its opinion on this subject; but the accusations brought against this medicine by the Council of Hygiene are worth notice. All physicians are aware what disastrous influence is exercised on the health of young infants by defective alimentation, and especially animal nourishment; fatty matters are as little suited to the alimentation of newly-born infants as albuminoids, excepting always casein, which exists normally in milk, and is found to be perfectly assimilable. In fact, in the first period of life, the juices necessary for emulsifying fatty matters are almost entirely wanting. The liver, in spite of its enormous development in this stage of existence, secretes only a small quantity of bile; and the researches of Langendorf and Zweifel have proved that, in young children, pancreatic juices possess an emulsive power which is almost *nil*, or, at least, very slightly marked. These physiological considerations sufficiently indicate that—far from being profitable to the infant—fatty matters, and especially cod-liver oil, can only injure its health, and gravely compromise the integrity of its digestive functions.—*British Medical Journal; Cinc. Lancet and Clinic*, Nov. 26.

THERAPEUTICAL NOTES.—*Peruvian Balsam in Laryngeal Ulcerations.*—In this disease Dr. M. Schmidt recommends specially antiseptic inhalations of Peruvian balsam. Ten drops of a mixture consisting of two parts of Peruvian balsam to one of spirit of wine, are added to boiling water, and the vapor which rises is inhaled for some time; this is done three or four times a-day.

Parsley as an Antigalactic.—Dr. Martin, in the "Bull. gen. de Therapeut.," states that if the breasts of a nursing woman be covered with parsley leaves freshly pulled, the application being renewed several times a day, as quickly as the leaves fade, the milk will soon cease to appear. This is an application which may be used when it is impossible to give purgatives or other remedies internally.

Pliable Iodoform.—Dr. Fowler makes a pliable mass of iodoform by mixing it with isinglass and glycerin. The isinglass is reduced to a jelly by steam, and enough glycerin added to give it consistency and pliability. The proportions are as follows: Iodoform, ℥i; isinglass, ℥viii; glycerin, ʒvi.

Pills for Incontinence of Urine.—Professor Gross advises:

℞	Strychniæ, ...	gr. i	
	Pulv. cantharid., ...	gr. ii	
	Morph. sulph., ...	gr. iss	
	Pulv. ferri, ...	℈ i	M.

Make 40 pills.

Dose: One three times a day to a child ten years old.—*Med. and Surg. Reporter*, Oct. 22, 1881.

METAPHOSPHORIC ACID is recommended by Hindenlang, in "Berlin Klin. Wochenschrift," as a safe and efficient reagent for albumen. Immediately before use dissolve a small piece in water, and add this to the urine to be examined. A cloudy solution appears when only the slightest traces of albumen are present.—*Atlanta Med. Register.*

MINUTES OF THE PHARMACEUTICAL MEETING.

PHILADELPHIA, Jan. 17th, 1882.

In the absence of the President Mr. T. Morris Perot was called to the chair. The minutes of the last meeting were read and approved.

The report of the Proceedings of the Fifth International Pharmaceutical Congress held in London in 1881 was presented by the general secretary, Mr. Bremridge, by direction of the Council. A copy of the "Chemist's and Druggist's Diary" for 1882 was also presented by the publishers.

A very handsome pine cone brought from Alaska by Dr. Joseph Thomas, measuring seventeen inches in length and five and one-quarter inches in diameter was presented by Mr. C. H. Needles. On motion, the thanks of the College were directed to be returned to the donor.

Prof. Maisch read a paper upon the *Oil of the Betula lenta*, cherry, sweet or black birch bark, by Mr. George W. Kennedy, of Pottsville, Pa. (see

page 49 of this number). Samples of the branches used in extracting the oil, and of the oil itself, were exhibited. Professor Sadtler suggested that the oil deserved to be investigated for the possible presence of an aldehyde.

A paper upon *Wine of White Ash Bark* was also read by Prof. Maisch (see page 54 of this number). Both papers were referred to the Committee on Publication.

After some discussion on various subjects the meeting adjourned.

T. S. WIEGAND, *Registrar.*

PHARMACEUTICAL COLLEGES AND ASSOCIATIONS.

ALUMNI ASSOCIATION, PHILADELPHIA COLLEGE OF PHARMACY.—At the third social meeting held Dec. 13, Dr. Kirk delivered a lecture on *Anæsthesia and Anæsthetics*, dwelling more especially upon the chemistry and upon the physiological effects produced by the inhalation of ether, chloroform and nitrous oxide; experiments were also made with the latter, showing the high degree of heat produced by its use for sustaining combustion.

The fourth social meeting was held January 10, when a lecture on *Fermentation* was given by Dr. Tobolt, with especial reference to vinous fermentation and the various alcoholic liquids.

A very pleasant reunion took place at the College on the evening of December 30, when the students, a number of graduates and friends of the College were present, including many ladies. Addresses were made by Drs. Miller, Turnbull, Richardson, and Mr. Trimble. The audience was also entertained with recitations, inspected the various improvements recently made in the College and partook of a sumptuous collation in the museum.

THE TRADE ASSOCIATION OF PHILADELPHIA DRUGGISTS tendered a reception to their friends at the College of Pharmacy on the evening of December 28. An exhibition with the oxy-hydrogen lantern was given by Prof. Maisch, and after partaking of the repast provided addresses were made by Messrs. W. B. Thompson, W. L. Turner, Dr. L. Wolff, C. Needles, L. Sayre and others. A very interesting exhibition of microscopes and microscopical specimens was made under the supervision of Mr. Holman, of the Franklin Institute.

PHILADELPHIA DRUG EXCHANGE.—The annual meeting was held January 17 at the rooms of the Exchange, No. 17 South Third street, President H. N. Rittenhouse in the chair. Alexander H. Jones submitted the report of the Board of Directors, specially mentioning the Internal Revenue tax, which the Board claimed should be revised, and upon matches, patent and proprietary medicines the tax should be abolished. The Board also favors such a gradual reduction upon all articles that eventually the tax would be wiped out; a revision of the tariff laws, and urges the appoint-

ment of a commission of competent gentlemen, who shall give the subject their patient consideration, calling to their aid those best informed upon all matters affecting trade and manufactures. The report was, on motion, referred to the in-coming Board.

Mr. Dallam submitted a resolution to the effect that the Exchange, through its Board of Directors, institute prosecutions against all thieving employés in the trade, which was adopted.

The election for officers and directors resulted as follows: President, W. J. Jenks; Vice President, C. B. Linn; Secretary, A. R. McIlwaine; Treasurer, E. H. Hance. Directors—William Gulager, A. J. Jones, Dr. Richard V. Mattison, W. M. Wilson, Robert Shoemaker, H. N. Rittenhouse, H. B. Rosengarten and M. N. Kline.

NEW YORK GERMAN APOTHECARIES ASSOCIATION.—At the annual meeting the following officers were elected for the year: President, P. Fred. Lehlbach; First Vice President, C. Schleussner; Second Vice President, A. Tscheppe; Recording Secretary, J. B. v. Fuerstenwaerther; Corresponding Secretary, C. Eimer; Treasurer, Theo. Louis; Archivist, A. Tscheppe; Librarian, Paul Balluff; Trustees—G. Hebberling, Fr. Burghoff, G. Pfingsten.

The association numbers 114 members.

MASSACHUSETTS COLLEGE OF PHARMACY.—At the Pharmaceutical meeting held December 13, the subject of *Pharmacopœia Revision* was discussed and the zealous labor of the Chairman of the Committee on Revision, Dr. Charles Rice, of New York, commented upon. The omission of all doses from the pharmacopœia, as directed by the National Convention, was discussed in its various aspects, and in connection with this, the responsibility of pharmacists in regard to doses prescribed, and the propriety of adoption, by physicians, of a uniform sign for indicating the correctness of an unusual dose, that may be prescribed.

CINCINNATI COLLEGE OF PHARMACY.—At the annual meeting held January 10th, the following officers were elected: President, James H. Feemster; Recording Secretary, Wm. J. Martin; Corresponding Secretary, F. Schuerman; Treasurer, Chas. Faust; Trustees—George Eger, Dr. R. M. Byrnes, H. Wrede, M. Gleick, and F. A. Kautz, the latter to serve the unexpired term of Jas. H. Feemster.

THE VIRGINIA STATE PHARMACEUTICAL ASSOCIATION was organized at Petersburg, January 4th. The Pharmaceutical Association of that city had issued a call, in response to which a number of pharmacists from different parts of the State assembled and effected a temporary organization by the election of W. F. Spotswood, of Petersburg, chairman, and E. R. Beckwith, of the same city, secretary. After the permanent organization had been agreed upon, the following officers were chosen: President, T. Roberts Baker, Richmond; Vice Presidents—C. A. Santos, Norfolk, Wm. E. French, Petersburg, C. H. Lumsden, Lynchburg, and G. W. May,

Staunton; Secretary, E. R. Beckwith, Petersburg; Treasurer, F. H. Masi, Norfolk; Corresponding Secretary, Dr. E. A. Craighill, Lynchburg.

A constitution and by-laws were adopted and a committee was appointed to draft and report a pharmacy law to be presented to the General Assembly for its action. The committee consisting of J. W. Thomas, Norfolk; T. F. Knock, Petersburg; C. H. Lumsden, Lynchburg; G. W. May, Staunton, and F. H. Masi, Norfolk, subsequently reported the law, which was approved and adopted as a whole.

On motion of Dr. Starke, it was resolved that all reputable druggists in the State shall be eligible to membership in the Association on sending their names to E. R. Beckwith, Secretary, Petersburg, Va., and complying with the following by-laws: "The initiation fee of this Association shall be $1, with the annual contribution for the current year, shall be paid into the treasury; and the applicant sign the constitution and by-laws before the close of the next annual meeting to be held on the third Tuesday in May next, in Richmond."

During the sessions of the convention the visiting pharmacists were very hospitably entertained at a banquet by the Petersburg Pharmaceutical Association in the banquet-room of the Masonic Hall.

West Virginia Pharmaceutical Association.—A special meeting was held, January 12th, in McLain's Hall, in the city of Wheeling, for the purpose of considering the proper steps to be taken in relation to a bill before the Legislature which, in section 3, provides for the appointment, by the circuit court in every county, of a board of examiners—consisting of three intelligent physicians—for the purpose of examining all persons desiring to obtain a license to carry on the business of a druggist in such county. The section also forbids the sale of alcohol, except upon the affidavit of the person requiring it, stating the quantity and the "mechanical or scientific" purpose for which it is to be used; it also forbids the sale of spirituous, vinous and malt liquors, drinks, mixtures or preparations, except upon the written prescription and statement of a practising physician "of good character and standing in his profession," certifying on his professional honor that the article is absolutely necessary as a medicine.

The Association, after a lengthy discussion, expressed itself strongly in opposition to the bill as far as it relates to druggists, and in favor of maintaining the present pharmacy act with such amendments as had been proposed by the Commissioners and in the Governor's message. A special committee was appointed to use all honorable means to defeat the bill.

The committee had a protracted hearing before the Judiciary Committee on January 21st, when Mr. Logan spoke of the iniquities of the proposed law, and Mr. Bocking of the benefits of the present act. The Judiciary Committee finally agreed to strike out section 3 of the proposed bill, which, as amended, relates mainly to licenses for the sale of intoxicating liquors and is, in the main, considered unobjectionable.

Pharmaceutical Society of Great Britain.—At the Pharmaceutical Meeting held November 2d, three papers were read which we pub-

lished in our last number, pages 18 to 23. Mr. Martindale's incompatible mixture (see page 18) and the manner in which he overcame the difficulty and succeeded in dispensing the mixture so that it could be given in properly divided doses, occasioned considerable discussion concerning that apparently inexhaustible question whether and to what extent the dispenser was justified in deviating from the letter of the prescription. While several members expressed themselves as being averse to deviating in any manner without previously consulting the physician, and if that were impossible to rather decline compounding the prescription or to dispense it with a "shake-the-bottle" label, others were of the opinion that the dispenser was bound to assume personal responsibility so that a fair and proper dose of the ingredients ordered could be given, and that the prescriber should be informed of the deviation, if possible, before, or if not afterwards.

In the discussion on Mr. Gerrard's paper (see page 20), it was stated that while the change in odor might be explained, the cause of the alteration in color was as yet unknown. Mr. Parker's paper (page 21) brought prominently forward some of the difficulties in ascertaining the solubility of any material.

EDITORIAL DEPARTMENT.

INTERNATIONAL PHARMACOPŒIA.—The commission inaugurated at the International Pharmaceutical Congress of London, for the elaboration of an international pharmacopœia, has been completed for the United States, the Council of the American Pharmaceutical Association having elected to this position Charles Rice, Ph.D., of New York, the efficient chairman of the committee on revision of the U. S. Pharmacopœia.

SECRET MEDICINES.—It will be remembered by many readers of the JOURNAL, that, five or six years ago, a Popular Health Almanac was issued, the object being the imparting of useful information on all subjects connected with the health of the individual and the public, and more particularly on the composition of nostrums. This enterprise did not meet with the encouragement which it deserved. We were reminded of this on reading in the "Pharmaceutische Zeitung" for Sept. 21st, of a plan put into execution by a German pharmacist, L. Hausmann, who has procured a number of copies of an official report on secret medicines, published by C. Schnetzler and Dr. F. Neumann, for the purpose of lending them gratuitously to such of his customers who feel an interest in this subject. The German literature contains several works, giving the composition of popular nostrums as ascertained by chemical analysis. Whether the publication of these works has exerted any marked influence on the popular use of the compounds we are not prepared to say; but, doubtless, a knowledge of the composition of the latter would be of more practical use to the public than their indiscriminate employment upon the strength of the manufacturers' recommendations; and if the public will not purchase the books, it

would seem to be a commendable act to let them have the information free of expense.

FOREST CONVENTION.—We have on various occasions referred to the necessity of forest culture; that druggists and pharmacists are, in a large measure, interested in this question, was well shown in the interesting and instructive address of Mr. G. W. Sloan, delivered by him as president of the American Pharmaceutical Association at the meeting held at Saratoga in 1880, and in which he proved the gradual disappearance of many medicinal plants from localities where they had formerly been plentiful, but had now ceased to grow in consequence of the destruction of forests. His suggestion that the State Pharmaceutical Associations confer with State Boards of Agriculture with the view of the more systematic cultivation of medicinal and other useful plants, has, we believe, not secured that notice and attention which it seems to deserve.

The country at large is doubtless to a still greater extent interested in the constantly increasing demand for timber of nearly every description, but more especially for those kinds which are largely used in building and for general manufacturing purposes. This demand has been followed by scarcity of timber in many localities and by a large appreciation in value of lumber, so that the necessity becomes yearly more obvious of making provision for the future supply of material in which all industries are interested, either directly or indirectly. The call for a forest convention does therefore appear to come not any too soon. The convention is to assemble in Cincinnati on April 17th next, and we understand that extensive arrangements are being made to insure the success of the great object in view—the rational cultivation of forests. It will require much patient labor to educate the popular mind in looking upon forests from other points of view than that merely relating to the income to be derived from the cutting of timber; but it is a labor in which all should feel interested, and druggists and pharmacists to at least as great an extent as the general public. The city inaugurating this movement is deserving of high praise for the commendable spirit shown in the endeavor of enlisting the active co-operation of all sections of the country, with the view of securing the adoption of measures that are of national importance.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Report of the Proceedings of the Fifth International Pharmaceutical Congress, London, 1881. London: Pharmaceutical Society of Great Britain, 1881. 4to, pp. 299.

This handsome volume gives in the Preface a brief history of the origin of the fifth international pharmaceutical Congress, of whose proceedings a full account has been published in our October number, 1881, pp. 513—528. This official report contains the discussions in full, each speech being given in the language used by the speaker, and where this was not English an English translation is supplied; and all communications placed before

the Congress are printed in the English, German and French languages, such printed versions having also been supplied to the members of the Congress.

Die Pflanzenstoffe in chemischer, physiologischer, pharmakologischer und toxikologischer Hinsicht. Für Aerzte, Apotheker, Chemiker und Pharmakologen bearbeitet von Dr. A. Husemann, Dr A. Hilger und Dr. Th. Husemann. Zweite völlig umgearbeitete Auflage. Berlin: Julius Springer, 1882. 2. Lieferung. Price, 6 marks.

The vegetable compounds in their chemical, physiological, pharmacological and toxicological relations.

We have noticed the first part of this valuable work on page 638 of our last volume. The part now before us completes the first volume, which makes a book of 664 pages, and embraces the remainder of the cryptogams and of the phænogamous plants, the gymnosperms, the monocotyledons and a portion of the dicotyledons, namely Amentaceæ, Urticineæ, Centrospermæ and Polycarpieæ, the latter including the following natural orders: Lauraceæ, Berberidaceæ, Menispermaceæ, Myristicaceæ, Anonaceæ, Magnoliaceæ, Monimiaceæ and Ranunculaceæ. Among these plants quite a number are found possessing considerable importance on account of their chemical constituents as well as their uses in medicine and the arts, such as the pines and firs, aloes, colchicum, veratrum, sabadilla, the oaks, peppers, rhubarb, the laurels, aconites and others. Many of these have been subjected to chemical investigation, often with conflicting results, which the authors have endeavored to harmonize where possible. In quoting the literature, the journals on works in which the investigations were originally published, are usually given, though in some cases the translations or abstracts are only referred to. The more recent American literature has received its full share of attention; but of older investigations we believe that those on Aspidium marginale, the root of Myrica cerifera, the root of Maclura aurantiaca, the herb of Polygonum hydropiper, the oil of Chenopodium anthelminticum, the products of Benzoin odoriferum, the barks and fruit of different magnolias, the herb of Anemone Ludoviciana and others deserved to be briefly noticed. No mention is made of Drimys Winteri. Borneol or Borneo-camphor has been placed under Lauraceæ, following camphor, with which it is chemically related, although according to the general plan of the work it would be looked for under Dipterocarpaceæ. But these imperfections, including also the few cases where the old notation has not been changed, as on page 568, are of little importance. In all important matters the information given is full and in keeping with the latest researches, and when, as might be expected, subjects of less or of trifling weight and value are mentioned, they have generally received as fair an attention as on critical examination they seem to require. The work, as far as it has appeared, is of that high character which insures its due appreciation by those who have occasion to consult it, and by the selection of clear and distinct types, and of good paper, the publishers present it in an attractive garb.

Illustrations of dissections in a series of original colored plates representing the dissections of the human body. By Geo. Viner Ellis, Professor of Anatomy in University College, London, and G. H. Ford, Esq. Vol. I. Second edition. New York: Wm. Wood & Co., 1882. 8vo, pp. 233.

The first issue of the present year's series of Wood's Library of Standard Medical Authors is a volume containing 28 plates of dissections which were originally executed of life size and published in folio, but have been reduced on a uniform scale and reproduced in facsimile expressly for this edition. The volume illustrates the dissections of the upper limb, the head and neck, and the figures have been drawn from actual dissections, and printed in colors with the object of making them as true pictures as possible of nature, and more serviceable as copies for the student to imitate. The part of the human body to be illustrated is divided into suitable stages or regions, and the muscles, blood vessels and nerves of each region are shown in layers in the natural order of succession, so that their mutual connections may be brought before the eye at one and the same time. The plates are handsomely executed and the accompanying text has been written with the view of its practical usefulness to the anatomist and surgeon.

Proceedings of the North Carolina Pharmaceutical Association at its second annual meeting held at Newbern, August 9 and 10, 1881. Monroe, N. C.: 1881. 8vo, pp. 64.

The officers for the current year are S. J. Hinsdale, Fayetteville, president; Wm. Simpson, Raleigh, E. H. Meadows, Newbern, and V. A. Thompson, Winston, Vice-presidents; T. C. Smith, Charlotte, Secretary; S. H. Smith, Winston, Local Secretary, and J. S. Pescud, Raleigh, Treasurer.

Papers were read by S. J. Hinsdale on various tests; by E. V. Zoeller on the metric system; by J. A. Sheets, on syrup of ferrous iodide, and by E. V. Zoeller on syrups and emulsions. The next annual meeting will be held at Winston, on the second Wednesday of August, 1882.

Proceedings of the second annual meeting of the Illinois Pharmaceutical Association, held at Peoria, Oct. 18 and 19, 1881. Chicago: 1882. 8vo, pp. 63.

An account of this meeting will be found on page 586 of our last volume. The pamphlet contains the portrait of Mr. W. W. Marmon, the first president of the association.

An apparatus for the rapid analysis of mixtures of gases. By Arthur H. Elliott, New York.

Reprinted from the School of Mines Quarterly, November, 1881.

Report of the Bureau of General Sanitary Science, Climatology and Hygiene, to the American Institute of Homœopathy. Session of 1881. Pittsburgh. 8vo, pp. 117.

Reprint from the transactions.